Medical Times

A Monthly Journal of Medicine, Surgery and the Collateral Sciences

Published by THE MEDICAL TIMES COMPANY at 95 Nassau Street

VOL. XLVIII., No. 10 NEW YORK, OCTOBER, 1920 Fifteen Cents a Copy One Dollar a Year

CONTENTS

Established 1872. *Entered at the New York Post Office as Second Class Matter*

1/120 1 0.06 cc

Medical Times

A Monthly Journal of Medicine, Surgery, and the Collateral Sciences

Vol. XLVIII., No. 10 | New York, October, 1920 | Fifteen Cents a Copy, One Dollar a Year

General Scientific

UTERINE FIBROIDS COMPLICATING PREGNANCY.

Aimé Paul Heineck, M.D.,
Chicago, Ill.

During pregnancy, women are subject to many pathological conditions that influence gestation, parturition, and sexual life. When of a surgical nature, such conditions find in pregnancy no contra-indication to the application of surgical principles, *e. g.*, appendicitis being met by appendectomy; cholecystitis and cholelithiasis by cholecystotomy or cholecystectomy, either being considered routine performance.

There arises, however, in the course of pregnancy a condition to which obstetricians, gynecologists and surgeons have given an entirely inadequate amount of study, namely, the occurrence of uterine fibroids.

Uterine fibroids afflict all races. They originate during menstrual life and are more frequent than ordinarily suspected. When they occur in pregnancy, two lives are at stake; therefore, the subject is well worth being brought to the special attention of the medical profession.

The opinions expressed in this paper are based on my personal experience suplemented and controlled by an analytical survey of 380 cases reported with adequate data in which the diagnosis received either operative or post-mortem confirmation. The following observations offer themselves:

Any part of the uterus may be the seat of a fibroid; even the entire uterus may undergo myomatous degeneration.

Uterine fibroids are found associated with any form of pregnancy and occur in gravid uteri, otherwise normal or abnormal, congenitally so or acquired.

Uterine fibro-myomata exert an unfavorable influence upon conception, gestation, labor and the puerperium.

Uterine fibroids originate and may continue during all periods of menstrual life, may first become manifest in primiparae, deutiparae, and multiparae as is evidenced by the following table:

Primiparae	101
Dutiparae	30
III-parae	12
IV-parae	8
V-parae	7
VI-parae	6
VII-parae	3
VIII-parae	3
IX-parae	1
XI-parae	1
XIV-parae	1
Not stated	207

The youngest patient was 19 years old, the oldest three each, 45 years old.

19	to	24	years	inclusive.....	17
25	"	29	"	"	54
30	"	34	"	"	84
35	"	39	"	"	76
40	"	44	"	"	37

Fibroids vary in number, location, size, anatomical relation, and also in shape, consistency, structure, mode of implantation and rate of growth.

The uterus has been found to be the seat of fibroids originating in the rervix, in the body, or in both body and cervix. One hundred and fifty-four cases under consideration presented one fibroid; 22 cases, two fibroids, and 56 cases, several fibroids.

Cervical fibroids are of rarer occurrence than those of the corpus. Among the cases herein considered, one notes 25 of the former to 139 of the latter. The cervical variety arises from any part of the cervix; may or may not invade the cervical canal; and frequently burrow under the peritoneum on the anterior or posterior aspect of the uterus. Submucous cervical fibroids not uncommonly prolapse into the vagina. Of the corpus fibroids, 12 originated in the cornu, 39 in the fundus, 44 in the anterior wall, and 44 in the posterior wall; in 8 cases, they occupied several parts of the body.

A classification serviceable alike from an anatomic, diagnostic and therapeutic viewpoint, is based on the relation of the tumor to the various layers of the uterine wall. Thus fibroids are designated superitonal, interstitial or intra-mural and submucous. The subserous and submucous types are sessile or pedicled. In many cases, more than one uterine layer is involved, and in a few, the whole uterus appears to have undergone fibro-myomatous degeneration.

The following table indicates their reported distribution:

	Cervix	Body
Subperitoneal	2	66
Interstitial	29	74
Submucous	8	29

Pedicles vary in thickness and length, and at times undergo torsion. The latter is a rare accident; few pedunculated fibroids having a pedicle long enough to allow of rotation.

Uterine fibroids by virtue of their weight, volume, or location displace and fix the pregnant uterus forward laterally, upward, downward or backward, causing pathalogical versions and flexions, and even pelvic impaction and incarceration. Such displacements are temporary in the beginning, but become permanent when inflammatory adhesion of the tumor to neighboring structures or organs takes place. Retro-uterine fibroids adherent to the pelvic floor will often be found as immovable as intraligamentous tumors.

When pregnancy develops in a myomatous uterus, the nutrition of the fibroids is unfavorably influenced by the altered conditions and hypertrophy of the tumor results. The hypertrophy of the tumor is an effect of the increased vascularity and of the increase in number and size of the tumor cells. The softening being largely due to oedematous infiltration of the neoplasm, allows changes in the shape of the tumor, such as flattening against the uterus, against the pelvic walls, etc.

Fibroids like other tissues masses are subject to inflammatory and degenerative changes. These changes occur previous to, or after abortion, or premature labor; previous to of after full-term labor. Owing to their low vitality, fibroids offer little resistance to invading germs, either implanted upon, or conveyed to them from the uterine cavity, or elsewhere,[10] by way of the lymphatic or blood-vessels. Inflammation of a fibroid terminates in gangrene, partial or complete, central or peripheral; in suppuration,[5] or in the formation of adhesions. Adhesions of inflammatory origin by displacing and fixing the gravid uterus interfere with its functions and that of contiguous viscera, and are an important factor in the etiology of dystocia. Adhesive inflammation may bind the tumor to one or more organs[41] and structures,[9, 12, 19, 24] omentum, intestines,[39] Douglas' Pouch,[28, 42] and to the abdominal wall.[41]

Gangrene is due to different factors: circulatory and nutritive disturbances, pressure within or outside of the uterus, lessened leucocytic defense and ease of infection of neoplastic tissue.

Fibroids are subject to calcification, to fatty, cystic, myxomatous, or red degeneration. Degeneration occurring in the interior of fibroids can lead to grave peripheral complications. Red degeneration of fibroids is an aseptic necrobiotic process characterized by hemolysis and autolysis of tissues. The tissue of the fibroid becomes necretic and refuses to stain, and presents on section a raw-meat, brown or mahogany color which darkens on exposure to the air. The color is due to lacking of blood in the necrosed tissue and diffusion of blood pigment into the cells. Red degeneration occasionally met in non-gravid myomatous uteri, is more frequent, more extensive, and more intensive in uterine fibroids co-existing with or complicating pregnancy. In over fifteen cases herein considered, one or more of the fibroids had undergone red degeneration.[14, 20, 4]

The process of red necrosis may advance to complete liquefaction of tumor with rupture of either into the peritoneal or uterine cavity, and secondary infection. In four cases, distinct evidence of cystic degeneration was present; the cyst wall being formed by the capsule and the periphery of the tumor; the cyst contents, by a chocolate colored fluid.[18]

Pathologic conditions co-existing with uterine fibroids are either purely co-incidental or determined partly or wholly by the neoplasm. The frequent association of uterine fibroids with localized peritonitis[32] and with disease of the uterine appendages is too well known to call for more than passing mention.

Purely co-incidental pathological conditions are recorded: appendicitis, ovarian cyst, torsion of the pedicle of a dermoid ovarian cyst, intraligamental ecchinoccus cyst, carcinoma of the cervix, etc.

Without repeated examination, the diagnosis of uterine fibroids and co-existing pregnancy is difficult to establish. The signs of pregnancy may be mimicked by fibroids and vice versa; e. g., uterine souffle, bluish discoloration of the vaginal walls, Braxton-Hicks intermittent uterine contractions; ballottement and abdominal palpation often give analogous findings in pregnancy and uterine fibroids.

Pressure upon the vascular channels is provocative of an oedema involving the legs; upon the nerves of the sacral plexus, of pain; upon the intestines, of intestinal obstruction; upon the rectum, of rectal tenesmus; constipation and diarrhea. Pressure upon the kidneys and ureters, by anuria and uremia. Pressure upon the bladder is followed by vesical tenesmus, frequent, painful and difficult micturition, and in some cases, by retention of urine.

Inflammation and degeneration occurring in fibroids determine local and constitutional symptoms. All degen erations, all acute inflammations of fibroids give rise to pain,[18] varying in duration and intensity according to the extent, acuity, and nature of the pathological process. The pain may be severe enough to necessitate the use of opiates.[29] Closely associated with pain is tenderness. During pregnancy, degeneration should be suspected whenever a uterine fibroid becomes tender and painful. The fever, pain, and tenderness present in uterine fibroids are provoked by one or the association of two or more of the following factors:

1. Rapid and sudden increase in size of tumor, as in oedematous infiltration.[34]
2. Serious mechanical pressure exerted by the new growth upon the rectum, bladder, and ureter.
3. Pelvic impaction and incarceration of tumor.
4. Bacterial inflammation of myoma or myomata, phlegmonous, suppurative or gangrenous in type.
5. Degeneration of tumor, cystic, red, etc.
6. Torsion of tumor's pedicle.
7. Torsion or pregnant myomatous uterus on its long axis.
8. Peritonitis, localized or diffuse.
9. Simultaneous adnexal disease, with or without peritonitis.
10. Impending abortion or premature labor.

A fibroid is a deformity, and if bulky may cause bulging and asymmetry of one or more abdominal regions. Abdominal and vagino-abdominal palpation enable us to obtain suggestive or fairly accurate information relative to the size, shape, consistency, mobility, and anatomical relations of uterine fibroids. A co-existing pregnancy makes the interpretation of the palpatory findings more difficult.

Uterine firoids influence fertility even before they produce subjective symptoms, to what extent is not as yet fully determined. In married myomatous patients, sterility is more common and fertility rarer than in mar-

ried women of a corresponding age with normal uteri. Fibroids may so displace the cervix that it is not bathed in seminal fluid during the sexual act; they may obstruct the uterine cavity and compress the interstitial portion of the tube. Small subserous myomata do not diminish the capacity to conceive. In a general way, the chances of conception diminish in proportion to the size of the tumors and to their influence upon the uterine mucosa. Submucous fibroids determine the greatest endometritic disturbances: atrophy, changes in the uterine glands, inflammation, etc., and therefore, of all fibroids, they are the most frequently associated with sterility.

A woman is more liable to conceive after the successful removal of fibroid or fibroids. Women having uterine fibroids conceive less often and frequently their first gestation occurs at a later period of life than in women with normal uteri. They may be an interval of many years between the pregnancies in fibro-myomatous uteri; from three to seventeen years in the cases we analyzed.

During its entire course, uterine fibroids are a grave menace to pregnancy. They frequently cause abortion, premature labor, or death of foetus with retention of ovum in utero. A placenta partly implanted upon a submucous or an interstitial fibroid does not develop normally.[18] Placenta accreta, partial detachment of the ovum, etc., may result. If the chorionic villi become imbedded upon a part of the mucosa covering a fibroid, the placental development and incomplete nutritive changes resulting therefrom is abnormal; the ovum may atrophy and the foetus die. "The seed has not fallen on good ground." All uterine displacements, retroversion, retroflexion, prolapse, etc., and all uterine tumors predispose to abortion and premature labor. Pelvic incarceration, pelvic impaction, inflammatory adhesion of the fibroid or fibroids to pelvic structures impede the enlargement and ascent of the pregnant uterus. Important in the causation of abortion are the inflammatory and degenerative changes to which neoplasms are subject. It goes without saying that the cause of sterility and of abortion that obtain in women with normal uteri are equally operative in myomatous women.

The hemorrhages accompanying uterine fibroids bear no fixed relation in amount, duration or frequency to the size of the tumor; they always interfere with the growth of the ovum. A hemorrhage may be insufficient to detach the ovum, and yet cause marked disturbance in the utero-phacental circulation. Abortion attended by hemorrhage, more or less severe, may be caused by a pedicled submucous fibroid insinuating itself into the cervical canal.

"When a woman with a uterine fibroid conceives, it is certain that her life is in jeopardy, and not only as long as the foetus remains within, but also when it is expelled, whether this occurs prematurely at term."[4] The danger to the child's life is proportionate to the nature of the obstruction, duration of labor, and method of delivery. Fibroids, cervical or corporeal, intensify the discomforts of pregnancy to such a degree that at times operative relief becomes imperative. According to Scipiades, in the myomatous cases that go to term, the first stage of labor is prolonged, the second very painful, and the third more abnoral in 21% of the cases. Fibroids retard and arrest the expulsion of a living or dead child through the natural passages, and not uncommonly demand the employment of radical means of delivery. Delivery per vias naturales in cetrain cases of retro-uterine or retro-cervical tumors is impossible. A large tumor my so deviate the uterine axis that the presenting part does not enter the pelvic brim, and an abnormal foetal presentation results. The presence of one, two, or more tumors and the resulting poor accommodation of the foetus to the maternal passages not infrequently cause faulty or vicious foetal presentation: shoulder,[6] left sacro-anterior,[8] foot,[17] breech,[30] transverse.[40] Fibrods by their volume,[17] and their location mal labor,[28, 13, 32] and necessitate suprapublic delivery to save the life of either the child or mother or both.

A low-down cervical tumor may prevent dilatation. Blocked labor if unrelieved may result in the rupture of the uterus. Uterine fibroids interfere with and weaken uterine contractions;[1, 27] not uncommonly, they cause uterine inertia,[29] and thereby prolong labor. Intra-mural myomata occupying a great part of the uterine wall, may prevent uterine contraction and retraction. Uterine inertia, impaired uterine contractility and retractility, pathologically adherent placenta, tortuosity of the cervical canal, make retention of placental tissue and post-partum hemorrhages common in myomatous uteri.

Placenta previa and adherent placenta are unusually frequent in pregnancy associated with uterine fibroids. Changes in the uterine mucosa incident to the presence of fibroids and insertion of the ovum upon the tumor often cause the placenta to be abnormally adherent. The pathological adhesions interfere with the spontaneous expulsion of the afterbirth and may necessitate manual[21, 25] or instrumental separation of the placenta.[43] In fibroids complicating pregnancy, the post-partum and puerperal hemorrhages may be abundant, even fatal.[16] It is not always due to retained placental tissue; it may be due to atony of the uterus, or to the fibroid itself.

During the puerperium, fibroids delay involution, predispose to thrombo-phlebitis, obstruct the lochial flow, and often become infected and necrotic from injury incident to delivery. Purely obstetrical assistance as forced delivery or extraction past the tumor entails the danger incident to contusion or embolism. Immediately after delivery, there ensue in uterine fibroids, circulatory and degenerative changes predisposing to infection. The frequent infections of submucous fibroids is due partly to their location and partly to the bruising of their pedicle by the child's passage through the parturient canal.

The spontaneous expulsion of submucous fibroids into the vagina is accompanied by free bleeding and has been mistaken for a miscarriage. It is observed chiefly at labor and during the puerperium, and in connection with small-based submucous fibroids.

Treatment.

In uterine fibroids complicating pregnancy, that treatment is most successful which best fulfils the following three conditions:

1. The delivery of a living and viable child.
2. The complete removal of all fibro-myomatous tissue.
3. The restoration of the mother to sexual and anatomical integrity.

Expectant treatment has dangers, viz., postponement of the climacteris to fifty odd years, formation of submucous nodules, causing repeated hemorrhages, cardiac degeneration, thrombosis and embolism, and malignant degeneration of tumor tissue. It is unsurgical to abandon the patient to the uncertain influence of the menopause on uterine fibroids. Fibroid tumors of the uterus are a surgical disease, and like neoplasms in other organs are amenable only to operative removal. Surgery eliminates the danger of sepsis, be it puerperal or other, following degenerating, bruised, or infected myomata, averts many complications resulting directly or indirectly from fibroids.

The tolerance of the gravid uterus to operative procedure is known. When a uterine fibroid gives rise to symptoms that lead to its detection, there is considerable likelihood that it will endanger the patient's health and life. It being agreed that operative treatment is called for in fibroid complicating pregnancy, the next thing to determine is when to operate. Early operation allows conservative procedures where delay may entail the sacrifice of the uterus. At the end of pregnancy, a woman is in an unfavorable state of health for a major operation. Operative intervention is imperatively indicated in the presence of the following:

1. Bad general condition of mother. Often myomatous patients are first seen in a deplorable general condition, the result of hemorrhages of disease of the endometrium, adnexa, or peritoneum, conjointly or separately.
2. Intolerable pain.[34, 41, 38]
3. Inability to work.
4. Dyspnoea due to size of tumor.
5. Rapid growth of tumor.[38]
6. Extreme abdominal distention.
7. Renal insufficiency.
8. Pelvic incarceration or pelvic impaction of tumor.
9. Repeated and profuse hemorrrhages.
10. Torsion of tumor's pedicle.
11. Rotation of the uterus on its long axis.
12. Gangrene of tumor, partial or complete, central or peripheral.
13. Tumor degeneration, cystic, red, etc.
14. Septic complications.
15. Severe pressure on neighboring organs, ureter, bladder, rectum, etc.
16. Size and multiplicity of fibroids impeding the normal progress of pregnancy.
17. Fibroids that are a hindrance to birth through the normal channels (in these cases, forceps and version are contra-indicated).
18. Fibroids in the body of the uterus interfering with the uterine contractions.
19. Fibroids interfering with the outflow of the lochia.
20. Fibroids springing from the back of the lower segment of the uterus.

The following operative procedures have been advised:

1. Induction of abortion or premature labor.
2. Myomectomy:
   - (a) Vaginal: (1) By morcellement.[44] (2) Pedicle ligated and tumor removed.
   - (b) Abdominal: (1) Tumor freed from surrounding organs and pedicle ligated. (2) Enucleation.
3. Cesarean Section.
   - (1) Not immediately preceded or followed by any other operative act.
   - (2) With myomectomy.
   - (3) With hysterectomy.
4. Hysterectomy:
   - (a) Vaginal.
     - (a) less disturbing to the statics of the public organs.
     - (b) Abdominal.
       - (1) Supra-vaginal. (b) of easier and more rapid execution. (c) lower morbidity and mortality.
       - (2) Total. (a) if cervix is myomatous or otherwise diseased. (b) if there are any suspicions of malignancy.

Abortion.

Abortion accidental or induced exerts no curative influence on the treatment of uterine myomata. It is an illogical operation as it sacrifices the product of conception and in no wise protects the mother from the perils of fibroids. There are dangers incident to abortion:

1. Hemorrhage from myomatous uteri is at times alarmingly profuse and difficult to control.
2. Retention of the decidua and impeded escape of blood and lochia are caused by the displacement of the cervix and the distortion of the uterus.
3. Retained placenta can be due to various factors; the existing tortuosity of the cervical canal, defective uterine contractility and retractility, pathologically adherent placenta, etc.
4. Susceptibility to post-abortive sepsis is increased in cases of this nature.
5. Subinvolution is engendered by the presence of fibromyomata in the uterine wall.

Myomectomy.

Myomectomy has been successfully performed on gravid uteri at all periods of gestation and pregnancy has continued uninterrputed; also at time of labor and during the puerperium. There are two objections to myomectomy (1) it does not prevent recurrences; (2) it carries with it the possibility of uterine rupture in future gestations.

For the performance of myomectomy, the operator has the choice of two routes, vaginal and abdominal. The vaginal route has a limited field of usefulness. It is the operation of election.

1. In cervical fibroids,[45] interstitial or pedicled,[20] the latter are easier of access.
2. In long-pedicled submucous fibroids of the body protruding through the cervical canal.
3. In fibroid polypi causing lochiometra.

In a word in all cases of cervical fibroids pedunculated or sessile so situated that their vascular supply can be completely controlled by the operator.

The vaginal route is contra-indicated in the presence of:

1. Disease of the uterine adnexa.
2. Intestinal adhesions to the myoma.
3. Of malignant changes in the tumor.
4. Of a myomata that can be drawn into the vagina.

For myomectomy as well as for Cesarean Section and Hysterectomy, the abdominal route is preferable because:

1. It gives the operator a clear view of the operative field.

2. Allows separation of adhesions.
3. It gives full control of bleeding points.
4. It furnishes better access to tumor or tumors.
5. It enables the operator to adapt the operative procedure to the case in hand.
6. At the same time, it facilitates the simultaneous correction of any associated abdominal pathological condition.[28]

Grad, in his case, shelled out three fibroids and removed an ovarian cyst; eight months later, normal delivery.

Myomectomy vaginal or abdominal is a conservative non-mutilating operation. Though presenting difficulties in interstital and intraligamentary tumors, it is almost always of easy and rapid execution, presenting few hemostatic difficulties. When feasible, it is the ideal operation for uterine fibroids. The operator must not disregard the pathological fact that a small nodule left behind may grow to a large tumor before the end of pregnancy.[7] Myomectomy is preferred to hysterectomy, abdominal or vaginal, total or supra-vaginal, because:

1. In the sterile woman, the uterus being left intact, conception may follow. Though pregnancies after myomectomies are not frequent, nevertheless, the hope of pregnancy is not illusory.
2. In the pregnant uterus, it removes the disturbing symptoms and cures the condition. Especially are conservative measures indicated in women below 40 years of age whose uteri are not studded with fibroids and who are willing to face the probability of a second operation.
3. It gives gestation the opportunity to continue. After myomectomies, give opium to prevent abortion.
4. It permits the delivery of the child through natural passages. "Unable to push the tumor out of the pelvic brim, etc."[37]
5. The post-operative shock is milder, the convalescence shorter (especially after vaginal myomectomy) and the mortality rate for both mother and child is lower.
6. The menstrual and generative functions of the mother are retained.
7. If after the initial incision, myomectomy is found unsafe or impossible because the tumor is too large, too adherent or too deeply imbedded, no harm has been done and the appropriate operative act may still be performed.

Cesarean Section

As pregnancy approaches its completion, the delivery of a living child becomes a new factor. In gravid myomatous uteri, cesarean section is indicated near or at term in all cases in which delivery through the natural passages:

1. Would contuse the tumor, thereby predisposing it to infection and degeneration.
2. Would be extremely difficult as in the presence of large and multiple fibroids interfering with uterine contractions.
3. Would be mechanically impossible.
4. Would inflict serious traumatism upon the maternal tissue or in any way endanger the mother's life or future well-being.
5. Would jeopardize the future health or life of the child.

To combat one or more of the aforenamed anomalies, sixty-five cesarean sections were performed; they yielded fifty-nine babies; fifty-five single, and three twin pregnancies. In the course of a cesarean section on a myomatous uterus, myomectomy if feasible, is indicated.

Fibroids are a dangerous element in an involuting uterus. The benefits resulting from their removal far outweigh the risk incident to tumor enucleation or ablation. The mobility and pliability of the recently delivered uterus, facilitate access to and control of the wounds left by excised myomata The strongly retractile state of the uterine wall lessens the hemorrhage of enucleation. After cesarean section, the cervix must be patulous; at times the free escape of the lochia is assured only by artificial dilatation of the cervix. In thirty-eight cases, cesarean section was supplemented by hysterectomy. Nineteen of these were total; fifteen, subtotal or supra-vaginal. In four cases, cesarean section and delivery of child were followed by supra-vaginal amputation of the uterus and adnexa, and the cervical stump was anchored to the lower angle of the abdominal wound. (Porro operation.)

Hysterectomy

In the treatment of fibroids complicating pregnancy, hysterectomy is a procedure of necessity. It is a radical mutilating operation, justifiable:

1. If the woman is near the menopause.
2. If enucleation prove impossible, because of location, volume, multiplicity of tumor or general myomatous degeneration of the organ, and if the tumor be of such dimensions and so situated that neither delivery per vias-naturales nor progression to full term is possible.
3. If the patient is unwilling to undergo the risks incident to child bearing and refuses to wait for cesarean section.
4. After cesarean section to prevent pregnancies that would unduly endanger the maternal life; (contracted pelvis, rupture of the uterine scar, etc. Hysterectomy avoids all future obstetrical complications while the following two possibilities militate against cesarean section; (a) the seeping of uterine fluids into the peritoneal cavity; (b) spontaneous rupture of the uterus at site of the scar or near the same during another pregnancy.
5. If the cervix is distinctly abnormal by reason of lacerations, ulcerations, inflammation, or if there be the slightest suspicion of malignancy; in the latter cases, the hysterectomy should be total.
6. After neucleation bleeding becomes profuse and is not otherwise controllable.[46]

In hysterectomy, total or supra-vaginal, the operator has the choice of two routes, abdominal and vaginal. For the condition under cosideration, the latter is rarely employed. The removal of the uterus may be accompanied by the unilateral or bilateral removal of the adnexa. Unless diseased, the appendages should be left. When hysterectomy is to be performed, the supra-vaginal operation is to be selected, if it permits the total removal of the tumor. It is recommended to cut close to the vaginal insertion in order to avoid opening the ovum and the resulting outflow of liquor amnii.

Total hysterectomy is an operation of difficult technique and of some dangers. In 137 cases in which hysterectomy was performed (26 total, 111 supra-vaginal), there were ten maternal deaths.

1. Allen, E. S. "Large Gangrenous Submucous Fibroid from Cervical Construction (Complicating Pregnancy)." *Ky. Med. J.*, 11:255, 1913.
2. Andrews, Russell. "Myomectomy During Pregnancy." *J. Obst. Gyn. Brit. Emp.*, 17:569, 1910.
3. Beck, A. C. "Fibromyoma Complicating Pregnancy and Labor." *Am. J. Obst., N. Y.*, 75:498. Case Report, 1917.
4. Bland-Sutton, Sir J. "Red Degeneration of Uterine Fibroids Complicating Pregnancy." *Brit. Med. Jour.*, 1909, Vol. I, p. 147.
5. Brickner, Sam'l M. "Multiple Fibroids Complicating Pregnancy: Hysterectomy, Recovery." *Am. Jour. Obst.* Case Report, 65:645, 1912.

6. Bué, M. V. "Fibrome et Grossesse; Opération de Porro." Case Reports. *Bull. Soc. d'Obst. Gynéc. de Paris*, 13:353, 1910.
7. Carmichael, E. Scott. "Two Cases of Tumors Complicating Pregnancy." *J. Obst. & Gynec. of Brit. Empire*, 24:124-125, Aug., 1913.
8. Carroll, H. R. "Placenta Praevia Centralis Complicated by Fibroma of Uterus." *Lancet Clinic*, 111:231, 1914.
9. Chiaje, Della. "Fibromes Sphacélés Pendant les Suites de Couches." *Bull. Soc. d'Obst. de Gynéc. de Paris*, 16:663, 1913.
10. Chavannez, G. "Sur le Nécrobiose des Fibromes Utérins au Cours de la Grossesse." *Gynécologie*. Case Reports, 16: 513-524, 1912.
11. Fitzgibbon, Gibbon. "Pregnant Myomatous Uterus." *Lancet*, 1911, Vol. 2, p. 1627.
12. Frank. "Myomectomy for Necrotic Fibriod During Fourth Month of Pregnancy; Normal Labor; Pyelitis Postpartum." *Am. Jour. Obst.*, 68:97, 1914.
13. Frankl, Oskar. "Beitraege zur vom Uterusmyoma." *Archiv. f. Gynaek.*, Vol. XCV; 268-343.
14. Greenwood, C. H. "Red Degeneration of Fibroids in Pregnancy with Acute Symptoms in Which Hysterectomy Had Been Performed." *Brit. Med. Jour.*, 1911, I, 308.
15. Hargrave, E. T. "Fibroids of the Uterus, Complicated by Pregnancy; Report of Three Cases. Illus." *Old Dominion J. M. & S., Richmond*, 12:24-26, 1911.
16. Hartog, E. "Geburtskomplikation durch Myom." *Zentralbl. f. Gynaek.*, 1-34:678, 1910.
17. Hussey, Augustus A. "Fibroma Uteri; Pregnancy; Hysterectomy." *Am. J. Obst.*, 66:264, 1912.
18. Jordan, J. F. "Myoma Complicating Pregnancy. Discussion." *I. Obst. Brit. Emp.*, 23:344, 1913.
19. Kelley, J. Thos. "Cesarean Section. The Obstetrician a Specialist." *Wash. M. Ann.*, 8:263-276, 1909-1910.
20. Kinkead, R. J. "A Case of Labor Obstructed by Fibroid Tumor." *Lancet*, 1907, Vol. I, p. 94.
21. Kruger, Frank. "Myom und Graviditaet." *Zentralbl. f. Gynaek.*, 1-37:63, 1913.
22. Lazard, G. M. "Twin Pregnancy and Fibroids, a Case Report." *South Calif. Pract.*, 29:364, 1914.
23. Lea, Arnold W. W. "Fibroid Obstructing Labor at Full Term." *J. Obst. Gyn. Brit. Emp.*, 20:267, 1911.
24. Lepage, G., and Vandescal. "Primipare Ayant un Fibrome Volumineux Occupant Toute la Partie Postérieure de la Cavité Utérine." *Bull. Soc. d'Obst. et de Gynéc. de Paris*, 2:435-443, 1913.
25. Lobenstine, Ralph Waldo. "Fibromyomata of the Uterus, Complicating Pregnancy, Labor and the Puerperium; A Study Based on 100 Cases at the New York Lying-in Hospital." *Am. J. Obst., N. Y.* Discussion, pp. 134-138, 1911. *Bull. Lying-in Hospital*, 7:53-67, 1910.
26. Lockyer, Cuthbert. "Fibroid Tumors of the Uterus As —Complication of Pregnancy." *Brit. Med. Jour.*, 2:1232, 1910.
Lockyer, Cuthbert. "A Case of Multiple Fibroids Removed During the Sixth Month of Pregnancy, in Which Spontaneous Labor Occurred at Term, Followed by a Normal Puerperium." *Lancet*, 1:892, 1914.
27. Lynch, Frank W. "Fibroid Tumors Complicating Pregnancy and Labor." *Am. J. Obst.*, 68:427-429. Discussion on p. 535, 1914.
28. McCann, Fred'k J. "Fibromyomata Undergoing Cystic Degeneration Growing from a Myomatous Pregnant Uterus." Illus. *Proc. Roy. Soc. Med., Lond*, 9:91-94. *Obst. & Gynaec.*, Sect. 1915-1916.
29. McGlinn, John A. "Myomectomy in Pregnancy." *Am. J. Obst., N. Y.*, 75:406-408, 1917, March.
30. Manton, W. B. "A Consideration of Pregnancy and of Fibroid Tumors of the Uterus." *J. Mich. M. Soc.*, 10:78-83, 1911.
31. Morris, Lewis C. "Cesarean Section." 13:377-462, 1908-1909.
32. Mumford, James G. "Pregnancy, Uterine Myomata and Peritonitis." *Boston Med. & Surg. J.*, 161-292:294, 1910.
33. Pfaff, O. G. "Fibroid Tumors Completely Obstructing Uterine Canal; Dead Foetus Long Retained Without Infection." Illus. *Am. J. Obst., N. Y.*, 72-1018-1022, Dec., 1915. *Tr. Am. Assn. Obst. & Gynec.*, 28:165-169, 1915.
34. Rouville, M. De, and Guirauden. "Myome pure de l'Utérus Compliquant le Grossesse." *Bull. Soc. d'Obst. de Paris*, 14:537-540, 1911.
35. Scipiades. "Myom und Schwangerschaft." *Monat. f. Geburt u. Gynaek.*, 37:162, 1913.
36. Speransky, Bachmetew. "Nekrose eines Fibromyoms der Schwangeren Gebaermutter als Aetiologisches Moment der Undurchgaengigkeit des Darmnals." *Zentralbl. f. Gynaek.*, 1:33-553, 1909.
37. Smyly, Wm. "Myomatous Uterus Removed During Pregnancy." *Tr. Roy. Acad. M. Ireland, Dubl.*, 33:331-332.
38. Stone, I. S. "Fibromyoma of the Uterus." *Am. J. Obst.*, 62:440, 1910.
39. Toth, Stephen. "Myomotomie bei Schwangerschaft." *Zentralbl. f. Gynaek.*, 1-33:664, 1909.
Toth, Stephen. "Extrauterine Graviditaet bei Myom." *Zentralbl. f. Gynaek.*, 1-38:815-820, 1914. Discussion.
40. Vallois. "Fibrome du Col Compliquant la Grossesse." *Bull. Soc. d'Obst. et de Gynéc. de Paris*, 14:543, 1911.
Vallois. "Dystocie par Fibrome, Opération Césarienne et Hystérectomie Totale." *Bull. Soc. d'Obst. et de Gynéc. de Paris*, 2:370-374, 1913.
41. Violet. "Fibrome et Grossesse; Ablation d'un Gros Fibrome Sousperitoneal Conservation de l'Utérus Gravide; Avortement." *Lyon Med.*, 120:455, 1913.
42. Spencer, Herbert R. "Cecasean Section and Total Abdominal Hysterectomy for Retroflexion of the Uterus at Term by Fibro-myoma Adherent in Douglas' Pouch." *Proc. Roy. Soc. Med., Lond.*, 2: Obst. & Gyn. Sec., 74-80, 1908-1909.
Spencer, Herbert R. "Posterior Cesarean Section Followed by Total Hysterectomy for Fibroids." *Proc. Roy. Soc. Med., Lond.*, 3: Obst. & Gyn. Sec., 82-84, 1909-1910.
43. Paucot, H., & Vanverts, F. "Fibrome et Grossesse; Hystérectomie Abdominale." *Bull. Soc. d'Obst. de Gynéc. de Paris*, 14:449, 1911.
Paucot, H., & Vanverts, F. "Torsion d'un Fibrome Utérin au Cours de la Gestation; Myomectomie; Avortement." *Bull. Soc. d'Obst. et de Gynéc. de Paris*, 3:545-548, 1914.
44. Bonnifield, Chas. L. Fibroids and Pregnancy." *Tr. S. Surg. & Gynec. Assn.* Case Reports, 21:314-325, 1918. *Amer. J. Surg.*, 23-300-303, 1909.
45. Griffith, W. S. A. "Pregnancy with Uterorectal Adenomyoma with Extensive Decidual Metaplasia." *Proc. Roy. Soc. Med.*, 7:389-392 (Obst. & Gyn. Sec.), 1913-1914.
Griffith, W. S. A. Large Cervical Fibroid in the Vagina Obstructing Labor." *Proc. Roy. Soc Med., Lond.*, 3: Obst. & Gyn. Sec., 188.
46. Haultain, F. W. N. "Remarks on Pregnancy Complicated by Fibromyomata of the Uterus: A Record of Ten Cases Treated by Laparotomy." *Brit. M. J., Lond.*, 2:1665-1667, 1908.

1809 So. Trumbull Ave.

SYPHILIS AND THE PERIODIC PHYSICAL EXAMINATION.

ARTHUR F. KRAETZER, B.S., M.D.,
New York.

There is a growing and fortunate tendency to appreciate the value of the periodic physical examination. This we think marks the beginning of the next great movement in the conservation of the nation's vital resources, the vital resource in question being that most valuable one, namely, the health of the individual. It is a curious commentary on our human nature that we expend without a moment's hesitation vast energy in collecting data on the health of hogs and in taking measures to improve it, but are so lax in doing similar work for our fellow citizen. But the ground has been broken and the first furrow is the taking and recording of the periodic physical examination.

It has been objected that such a course is apt to breed hypochondriacs. To this we reply that fear comes from ignorance and is dispelled by knowledge. Hypochondria is due to some emotional fault, a psychological maladjustment. Many a man refuses a physical examination because he is afraid of discovering something wrong with himself. This is not a healthy reaction. If indeed the examination does disclose some diseased condition, it may turn out to be a readily curable one, or one which, if it had not been revealed so promptly, might go on to serious trouble. If on the other hand, as the chances certainly would be, no disease at all is discovered, our hypochondriac might well get considerable mental improvement.

The problem at hand is to conserve health. No problem can be of greater moment. No problem can be attacked without data. The data for our particular problem can only be gained by careful periodic examination, with the keeping of detailed and accurate records. No

man can successfully run a business without periodically taking account of stock and keeping account books. No man can run the supremely important business of conserving his health without adopting similar methods.

Regarding the technique of examination, it should comprise history (including all personal habits), actual physical examination, urinalysis, blood count, and examination of stained smear and the Wassermann. These, we think, constitute the irreducible minimum. These steps, if efficiently carried out, will generally suffice for a diagnosis. They will almost certainly show whether or not there be need of any special methods such as use of the *x*-ray or the investigation of the blood chemistry and renal functional capacity. The most detailed records should be kept, and the patient should always return to the same man for re-examination. The average general practitioner is too busy to devote the time necessary for thorough examination and so there must be developed specialists in such examinations. If treatment be required, there should be close co-operation between the patient's personal physician and the specialist who makes the examination. The ideal way is of course for the examination and treatment to be carried out by the same man, but this in many cases might not be practicable.

The value of the examination as outlined above is obvious. Many a condition can be discovered in its incipiency, and corrected. Many vague illnesses, which show no improvement if treated symptomaticaly, as is too often the case, could be accurately diagnosed and cured by the use of the above method.

The disease which is unrecognized in countless cases, and which is the cause of many obscure symptoms such as so-called "neurasthenia," dyspepsia, constipation, so-called "biliousness," etc., symptoms which show no response to the ordinary routine treatment, is latent syphilis. There is only one means of recognizing this condition and that is the Wassermann reaction. The use of the Wassermann reaction should not be limited to the cases which obviously suggest syphilis. It should be a matter of strict routine, because then only can many of the latent cases, and their name is legion, be discovered. If we limit the use of the Wassermann to cases with an obvious "lead," what would there be about a case of soidisant "neurasthenia" to suggest it? Yet many of these cases are on a luetic basis and are promptly relieved by specific treatment. If unrecognized, these cases, after months of inefficiency, discomfort, and unhappiness, may be suddenly overwhelmed by one of the disasters of the tertiary period. Then diagnosis cannot be made at the doctor's leisure. It must be made promptly or death may ensue. Another vital reason for the routine Wassermann is the protection of the next generation. An asymptomatic Wassermann-positive syphilitic may beget luetic offspring. True, this is not likely, but it may and does happen.

One great obstacle to the use of the routine Wassermann is the prejudice against syphilis. In the eyes of most of the laity and of many doctors, syphilis is not a disease, but a visitation of disgrace and divine wrath. Unconsciously it is identified with sexual guilt, and this unfortunate point of view is due to our prudish Anglo-Saxon attitude toward biological facts.

This article will close with the account of a case which, because the routine Wassermann was omitted, very nearly terminated in disaster. A man of 55 had been losing weight and strength for 6 months. History, physical examination, urinalysis, and blood-count were thoroughly and completely made, but a Wassermann was not considered necessary. The chief findings were a chronic purulent maxillary sinusitis and ethmoiditis, a moderate degree of arterio-sclerosis, faint albuminuria, and a rather marked protein putrefaction. The sinus and intestinal condition were considered the outstanding features and vigorous treatment was directed against them with practically no results.

Suddenly the picture took on a startling and sinister change. The temperature, which previously had been normal, became septic in type, shooting up to 104 degrees in the afternoon, with morning remissions. Liver and spleen were definitely enlarged. The sinuses as before gave forth a purulent discharge, but there was no change in the character or amount of the latter. Lungs were negative. Leukocyte count 18,000, with 86 per cent of polymorphonuclears. There were no petechiæ. Altogether the picture was the very ominous one of general sepsis with certain prospects of early death. The only obvious focus of infection was the sinus, but as the latter was draining freely, consulting physicians minimized its importance and advised against operative interference. Blood culture was negative. A Wassermann was done more in the sense of grasping at a straw than with any expectation that it would furnish useful information. On the third day of the patient's illness, to our intense surprise, it was reported four plus. On the same day, for the first time, there appeared a gummatous infiltration in the skin of the lumbar region. Arsphenamine was promptly given and after a sharp reaction the temperature fell to normal and remained there. Subjective improvement was immediate.

Diagnosis-gumma of the liver. A vigorous anti-syphilitic campaign of Arsphenamine, mercury salicylate, and potassium iodid was instituted. In a week the patient was out of bed. In two weeks more his health, which had been steadily failing for six months, was restored, and the sinus infection which his luetic infection had prevented him from combating, was immediately improved.

The moral is obvious: A diagnosis had been missed a man had been subjected to half a year of bad health and inefficiency, because the Wassermann reaction had not been considered as essential a part of a routine examination as a urinalysis.

50 West 55th St.

CUBISM IN MEDICINE.

GEORGE F. BUTLER, A.M., M.D.,
MEDICAL DIRECTOR, NORTH SHORE HEALTH RESORT,
Winnetka, Ill.

Frederick Peterson, in outlining the progress of psychiatry, remarks, "Psychoanalysis is to psychology what cubism is to art."

Cubism is a phase of impressionism. Impressionism, as Bacon tried to show by his "Idols," tends to dominate science. Bacon himself was so much an impressionist in science that, as William Harvey said, he "wrote upon science like a Lord Chancellor. Lord Chancellors and other equity judges evolve science from their internal consciousness.

From impressionism comes that obsession of the obvious which does not see that

> "Errors like straws upon the surface flow,
> Who'd seek for pearls and truth must dive below."

The truth of this couplet has been voiced in the philosophic axiom that every truth is overshadowed by a sophism more like truth than truth itself.

Medicine has a ready test for impressionism in the etiologic moment consisting of (1) the congenital constitution, (2) the state of the constitution at the time of excitation, and (3) the nature and extent of the exciting cause. So-called "Practical" men, from a financial bias and a desire to pander to a patient's prejudice,

often ignore the etiologic moment. The result is cubism in medicine, which retards evolution and mars the art.

From the malpractice immunity given by anesthetics and antiseptics, surgery has quite naturally given birth to the most glaringly obvious of these cubisms. Perhaps the most exquisitely absurd were the rival procedures of cervix incision and trachelorrhaphy. In the eighteen-seventies Sims' absolute claim that cervix stenosis caused most neuroses in women, as well as many constitutional states, was uppermost in the minds of the great majority of physicians. Rare, indeed, was the seemingly stenotic cervix which escaped the surgical slitter. In those years, under the absolute cervix laceration notions of Emmet, few cervices, torn or not, escaped tailoring. Many surgeons who had slit cervices under Sims' theory were found sewing them up under Emmet's. At the same time an oophorectomy itch set in. Oophorectomy was done for producing an artificial menopause, and to "cure" such neuroses as were of mythically reflex character.

In 1900 leading surgeons followed the physiologic neurologists in denouncing oophorectomy except for surgical reasons. Even then it was to be done in a conservative fashion.

The surgeons of the seventies and eighties were not the only cubists who ignored the constitutional elements of disease and took into account only the superficial, reflex exciting cause. In the early seventies during a therapeutic nihilistic craze, quinine was discarded because of a supposed "tonic action on the fibres." Many physicians, like many charlatans, ignored the fact that any remedy to be of value must try inherited and acquired defects of the constitution, and hence produce untoward effects. The dangerous fallacy that a drug will do no harm if it does no good arises from an erroneous belief in these untoward effects.

This erroneous belief has produced drugless quackeries. The same belief influenced the physio-medicalists who do not use poisons, but give large doses of drugs like lobelia.

Cubism masquerades under the guise of pathology as well as therapeusis. It played a great part in the varying pathology of tuberculosis. In the eighteenth century, and up to the early nineteenth, the specific contagious doctrine of phthisis dominated medical thought. In the eighteen-sixties, under the influence of Niemeyer, the "acute inflammatory" doctrine took its place, to be in turn succeeded by the specific doctrine in the nineties. Koch denounced clinicians in the early nineties for denying that human tuberculosis was identical with bovine. In the late nineties he denounced those who had accepted his theory, and claimed that the two were totally different.

Views of the pathogenic influence of syphilis have changed in the same way. In 1880 Fournier denied the non-specific influence of syphilis, and claimed that it never produced true paretic dementia. In the nineties he said paretic dementia was always due to syphilis.

Cubism in opthalmology found its extreme outcome in the "cylinder" quacks who "cured" everything from paresis to corns. Certain quasi-regular opthalmologists wrote volumes to demonstrate that mental and moral disorders of geniuses were due to uncorrected errors of refraction. Some of them failed to cure epilepsy in epileptic colonies, though the cases were selected by themselves. The "canalopath" also is here in evidence. "Orificial surgery," that apotheosis of reflex cubism, left a trail of suffering, and a huge amount of malpractice judgments against orificial sanitaria.

One result if this charlatanism was the number of reporters who were converted from pathologic into physiologic liars by operations on their rectal "pockets." The orificial association still meets, but most of its patrons have found congeniality in other cults.

Anesthetics and antiseptics, which so boomed cubism in general surgery, play a part in the cubistic doctrine of local infections due to pyorrhea alveolaris. Medically trained dentists have repeatedly shown that constitutional states, like autotoxication, scorbutus, diabetes, nephritis, gout and so on, play a great part in pyorrhea. This factor is complacently ignored by tooth-extracting therapeutists and *x*-ray men. Conservative dentists have shown that *x*-rays often not only fail to find local infections, but seemingly reveal them where they do not exist.

As the reflex opthalmologist could see nothing in man but one vast eye, so the *x*-ray tooth-local-infectionist-extractor can see man only as a tooth. Similar cubisms exist in rhinology, otology and laryngology, but in less dangerous fashion.

Reflex neuroses are less common in the practice of neurologists than of surgeons, except when such neurologists pander to medical cubisms. The latter type confound biochemic disorders like hysteria and neuropathy with organic diseases. Hysteria is a constitutional instability responding excessively in a psychic, otic, ocular, laryngologic, sensory, joint, spine, trophic or vasomotor direction to slight physical or psychic excitations coming from within or without. This constitutional instability mimics every possible disorder.

Every form of cubism from prurigo secundi (or operative itch) through mesmerism to Eddyism and miracles, has played a part in its "cure."

Just now psychoanalysis, the "masculine protest removal" of Adler and the association juggling of Jung, is foremost among the remedial procedures. The last two are offshoots of the school of Freud. There are lay psychoanalysts to whom, as to the osteopath and chiropractor, male and female hysterics resort. Incorrect diagnosis is the serious failure of the cubist here. There are not only organic complications of hysteric origin, like psychically caused bruises and the religious stigmata, but also renal and hepatic states. Anxiety and fear often exert a repressive action, causing the pale urine and the whitish stools of nerve states. In such conditions as these, elimination is bad. As there is a low degree of urea, many cylindroids, much indican, and abnormally low or very high degree of acidity, but no albumen, sugar, hyaline or granular casts, the kidneys seem normal. From this results the large number of renal cases found by Brill in patients referred to him for psychoanalysis.

The vicious circle was ignored by the internist cubist. He didn't recognize that mental stress often produces physical results which will not yield to psychic therapy. Blistering can be done by suggestion in neuropathic subjects, but suggestion will not cure the resultant blister. Mental and physical cannot be separated in their interactions. While I am willing to admit (with Bleuler) that psychoanalysis represents an experiment out of which one may often infer correctly certain definite psychic processes, most of it as practiced by our medical cubists is, in my opinion, meretricious or worse. The work that has been done with patients I have seen leads me to wonder why a few of the psychoanalysts I could name are not themselves under psychopathic observation. They interpret something sexual into every dream. "Everything must be

'interpreted' in order to get it to mean something else (the meaning looked for, or for the sake of analysis, hoped for)." It makes no difference to them what the dream is, they analyze and fabulize it in the *desired* direction. It is not by any means an analysis of the patient's actual mental life. It is chiefly the interlocking thought of the psychoanalyst. Haberman says it is only "construing into the patient's words meanings occurring in the interpreter's mind." "A diagnosis in the Freudian sense," said Straubli, of Basel, "is a diagnosis of the mind that made it."

The Freudist interprets something sexual, often vile, into the thoughts and dreams of patients, where there is not the slightest excuse for it. Again quoting Haberman, "To Freudian writers the entire langauge is made up of two groups of symbolic words, half meaning the male, the other the female genitalia. If any words happens to be left over they stand for incest, rape, anus or fecal associations, or for the fornicative, generally speaking. Hence the analyses, if not all at least the larger majority, are filled with ideas of illicit love, masturbation, actual or desired or dreamed-of-adultery, incest or fellatic, or Lesbian and abnormal desires and practices." As the cubist ophthalmologist can see nothing in an ill person but an eye, so the hide-bound Freudian can see nothing but sex.

I do not undervalue the sex element in disease. Every sensible physician considers the sexual life as carefully as he does the digestive tract; the gynecologic is thought of in the same colorless way as is the laryngologic. But the Freudian has reduced the matter to an absurdity, and a nauseating one at that. "They have frequently forgotten," as has been so well said by Dr. Mayer Solomon, of Chicago, "that each individual is a member of the human race, and that physiological and biological processes cannot, at least not always, be explained from a narrow, purely individualistic standpoint, let alone a psychologic one. Individual and racial psychology must be combined. The dynamic and mechanistic viewpoints are supplementary."

The question naturally arises to the normal minded physician, why should sex emotions alone give rise to disturbances? In other words, why regard sex emotions as the root of all emotions?

Kiernan remarks:

"The underlying phenomena of mental activity, according to Freud, is the wish to exist from the nutritional and reproductive standpoint. At the outset, as many biologists like Rolph showed the reproductive is an evolution from the nutritive function, which implies, moreover, fully developed consciousness.

"The older psychologists, who called these processes instinctive, put them more nearly in their true place. The placing of a sexual indifference from its possible developments by environment in the same group as homosexuality is as illogical as the confusion of the coexistence of sexuality perfectly developed with the states where it coexists with other natural functions. Freud claims that 'the child's sexuality is polymorphousperverse; that is, that it is made up of four rudimentary instincts: heterosexual, homosexual, sadistic and masochistic. The child is always autorotic.' To any student of sex psychology who has followed the evolution of sex, this exhibits a serious miscomprehension of the generalized type of sex in the child whose sex organ outward expressions often occur, as Renouf has pointed out, before birth. Sex does not exist in the lowest protozoa, but the reproductive state there gradually passes into hermaphrodism, then into the separate sexes. Psychologically the same evolution occurs. Masochism is not diverse from either homosexuality or heterosexuality. It may occur with either and so may sadism. While Freud plays here to the amateurish desire for absolute terms, he ignores fundamental laws of evidence."

Dr. Tom Robinson points out the error of the Freudians when he remarks that "therapeutically we are exhorted to believe the most powerful, if not a *sine qua non*, viz., Freudian analysis may completely fail even when the mechanisms postulated by Freud are extensively revealed, so that catharsis may not produce cure at all; whereas, in other cases, the fact that the Freudian mechanisms were not found did not hinder a complete cure by the ascertainment and mutual cognizance of quite other mechanisms that we are asked to believe essential for the production of psychoneuroses. In contrast with Freudian sex analysis a coutrance is the success of pure psychoanalysis; analysis without the shibboleth which have grown up around the work."

God knows we have been surfeited with fads and fallacies enough in medicine, but I think this is the most disgusting of all. There is another fad coming, if it is not already here, which will, of course, be overworked (mark my prophecy), and that is "Mucous Colitis." Already I have read long, recondite essays on the subject. One man says, "when the patient shows nervousness, depression of spirit, etc., it is well to look for mucous colitis." And I will assure the doctor that he will invariably find it in such nervous cases, and I'll also assure him that if he limits his treatment to the mucous colitis alone, he will fail to cure the "nervousness, depression of spirit," etc. He would better reverse the order.

Every operation, independently of its local surgical indication, has a constitutional effect which the late J. William White called the physical effect of the operation per se.; that is, of an operation as an operation irrespective of its location, character or severity. The mechanism here is the mechanism of the counter-irritant.

The body, mind and nervous system cannot be separated in the effects of and effects on ordinary somatic disease. This is frequently shown in deaths from anesthesia. Here renal, cardiac, hepatic, as well as mental depression, really predispose to death, but are ignored because not obivous to the one anesthetist who ignores the congenital or acquired constitution. This is a serious yet frequent result of cubism in medicine.

Cubism is an assumption of what is obvious to a shallow mind, through mistraining, bias, or by hope of gain, or through that isolation in an intellectual rut which is miscalled common sense.

I should not like to be understood as denying value to *any* therapeutic measure which takes into account the patient's whole psychic and somatic mechanism at the time he is brought under care, with due allowance for congenital defects, period of stress and general acquired defects.

The "incurable" (of the regular) hysteric is always the peripatetic advertisement of the "drugless healers."

Diagnosis based on the etiologic moment is the only cure for cubism in medicine.

Rademaker, who was a good deal of a charlatan, claimed he made three diagnoses; the nosologic diagnosis, the etiologic diagnosis, and the therapeutic diagnosis. Unfortuantely, he couldn't apply a very good principle, and from seeming empiricism used to cure Bright's disease with cochineal; "cure" meaning absence of albumen. This man, notwithstanding his rather logical formula, failed as a scientist because his diagno-

ses were based on *a priori* conceptions, not the etiologic moment. The nosologic diagnosis is often erroneous because the disease is regarded as a peculiarly mechanical process which creates excess or produces diminution in vital processes. The excess and diminution will vary in extent with the individual constitutlon. Too often, however, the disease is to the practitioner a procustean bed, to which the patient must be fitted, no matter how contradictory his symptoms.

In etilogoy, all but the alleged exciting cause is too often ignored. The more important general and local predisposions are ignored. This is particularly true of the "local infectionists." The therapeutic diagnosis must be based on broader principles than those of the empirical drugger, or those of the equally *ad captandum* nihilist. This has been very clearly put by Claude Bernard: "It will not satisfy the physician, though it may the empiric, to know that quinine cures fever. The essential thing is to know what fever is and to understand the mechanism by which quinine cures. All this is of the greatest importance to the clinician, for when he knows it the quinin cure of fever is no longer an isolated empiric fact. This fact is connected with the condition which binds it to other phenomena which lead to knowledge of the laws of the organism and to the possibility of regulating their manifestations."

Attemps to deduce laws in medicine always rouse the antagonism of physicians to whom general principles are abhorent and who have the school cramp. As Macaulay says, "They seem to think that the use of experience is not to lead men to the knowledge of general principles, but to prevent them thinking of general principles at all. They may play at bo-peep with truth, but they never get a full view of it in all its proportions."

Another phase of cubism is fanatic philoneism—the assumption that because a thing seems old it is of no value. The advice of Tennyson is here forgotten.

> "Forward, then, but still remember
> How the course of time will swerve,
> Crook and turn upon itself in
> Many a backward streaming curve."

Here, as elsewhere in science, it is too often forgotten that nature does not make leaps, but gradually evolves. Everything seemingly new derives most of its value from the old.

> "Thought by thought is piled
> Till some great truth is loosened
> And the nations echo round."

But, after all, why not cubism in medicine as well as in art? This is a grotesque age. Old fashioned people often think the younger generation is grotesque, and the younger generation is almost invariably sure the old fashioned people are. Is this not an age which shows us the Bolshevik as a politician? the picture press as a means of enlightenment? the parlor game of spiritism as religion? the orgiastic methods of advertisement as business? vers libre as poetry? the cubist's daub as fine art? Then why not cubism in medicine?

I believe one reason for the prevalence of cubism is due to the number of so-called specialists. The all round, broad-minded physician is being supplanted by the man with the one-track mind. But in my opinion the former is the one who, relying not entirely on instruments of precision, or on supposedly accurate laboratory tests or reports of specialists, but rather on his well-trained five senses, his judgment ripened by years of experience, and his abundant common sense, is better able to recognize disease with a certainty and an acumen denied to others, and better able to successfully and sensibly treat a person physically or mentally ill.

When a man is ill his whole system is disturbed. It is seldom that we meet with either the purely local or the purely general disease; in most cases the former is attended by some general manifestatiôns and the latter by local symptoms of greater or less intensity. Moreover, it must be remembered and accepted as truth that there is an interdependence of mind and body. The physician who considers only the material must fail as must the one who considers the spiritual only.

It is an axiom that "The physician often heals by what he is rather than by what he does." He must inspire his patients with hope instead of frightening them. Coleridge remarked long ago that in chronic nervous ailments "he is the best physician who is the best inspirer of hope."

An editorial in THE MEDICAL TIMES is so pertinent to this subject I beg leave to quote it:

"MAKING BRICKS WITHOUT STRAW.

'Set the scientifically trained practitioner of the prevailing type a definite problem in diagnosis having nothing to do with the patient's spiritual or intellectual life, and you will get a finely worked out answer.'

"All very well from a materialistic standpoint, and this type of worker is indispensable, of course, but it is just here, nevertheless, that the profession falls short and the freak cults come into their own, for beyond materialism very few of us get very far.

"To say that those who reject our ministrations are half-educated and half-baked is not to cover the case at all. The fault lies chiefly with ourselves.

"Even those physicians who cultivate things psychic attempt instinctively to materialize them, as it were, and work with formulae recalling motor mechanics and Teutonic hypotheses.

"We must not forget that even when a pretty problem in definite diagnosis has been solved, our therapy too often lags far behind our skill in determining what the matter is with the patient—meaning by therapy the whole management of the case.

"Hence the common recourse to quacks.

"The trouble is not that we lack divine powers, but that we are not any too human.

"Is it not true that the man who possesses great personal impressiveness—with patients—and is gifted in the way of swaying the sick, psychically, is very frequently regarded a bit askance, while incense is burned before the owls of the laboratory and clinic?

"It seems to us that the gifts of all types of practitioners—if they really be gifts—ought to be conscripted, never tabooed or invidiously estimated.

"Our diasgnosis and therapy ought to take more account of human personality, in the practitioner as well as in the patient. Will papers ever be wirtten on that theme, we wonder, as erudite and profitable as those that now preempt the columns of the medical press?

"'The successful physician of the future,' says Dr. Joseph Collins, 'must mak a biological study of human nature and of instinct if he would fulfill his privileges and discharge his duties. In no other way can he compete with the empiricists, supernaturalists and neoplatonists who have reaped such harvests in this country at the expense of the victims of incapacitating disorder of one or more of the bodily functions masquerading as disease of the nervous system.' To which we would add that the 'successful physician' of the future must apply the knowledge so gained—he must be something more than a mere student. In such a case he will not have to compete with 'empiricists, supernaturalists and neoplatonists'—why should there be any such folk if the physician of the

future lives up to his calling better than the practitioner of today?

"No small part of the lamented Osler's success was due to the remarkable personality and understanding of faith as the great leveler of life, to use his own phrase. It would do matter-of-fact physicians a lot of good to read what he wrote on this subject in 'The Progress of the Century' (Harper, 1901)."

I hope no one who reads this paper will think I am belittling the value of many of the modern methods of diagnosis, for a successful physician, dealing as he does with concrete instances of illness or with ill persons, not only must be familiar with laboratory methods and must utilize the results of laboratory investigations, but he must study and observe the patient himself, investigating all manifestations and evidences of abnormal function and—the most important of his work—he must find ways and means of correcting existing irregularities. He must contrive to restore the patient to normal or as near to normal as possible.

He must not be content merely with what he learns by the aid of the stethescope, microscope or x ray, or from the chemist or bacteriologist, but must go into the case from all sides; he must take into account all his faculties and functions, mental and nervous, as well as physical, all his surroundings, his conditions of birth, of parentage, and hence of inheritance. Nowadays a physician should be more than a narrow specialist. He should be broadly educated, liberal minded, skilled, and interested in matters outside his own immediate work. He should possess a wide knowledge of our common humanity in all its aspects.

Such knowledge can be obtained only by studying mankind, interesting oneself in men's work, and by reading the best books on various subjects. I am getting very tired of the doctor who knows and can talk on nothing but medicine. We should be so versatile and well read that we could intelligently discuss politics, religion, sociology, philosophy, music, literature in all its phases; in a word, our mental machinery should be large and capable of being readily shifted at will to suit the figures that move on the mental stage of our patient's minds. Man is a complex being, a conscious spark of divinity embodied in matter, and no part of his nature can be neglected or ignored without affecting the whole man in great or less degree.

"Disease is far more important and far deeper than an aching head, hurried breathing or a fluttering pulse. It is something much more serious than the mere interference of the mechanism of life. The measure of its evil is not the increased rapidity of the pulse, not the daily wasting of the body, nor its numerical frequency in the ills of mortality, but the degree to which it so tells upon the mind; heart, will and power of man, that it prevents him from doing that work in this world which it has been given him to do."

What I deplore is the lack of common sense in the practice of medicine. It has seemed to me that some specialists, in their zeal to try out every new diagnostic method, have overlooked the fact that the patient was ill. In that case, the patient not being certain that the specialist he has called in will let him get well, and not knowing what will be the bill if he does get well, has a stimulant to speedy recovery that the cubist often fails to take into account; or the patient is so frightened that he drifts into some sanitarium, a hypochondriacal nervous wreck, with a grip full of radiograms, cardiograms, laboratory reports, diet lists, and a long typewitten diagnosis giving some big, high-sounding name to his trouble—which in a great many instances would mean nothing to a sensible doctor, but might mean a tremendous lot to the already frightened patient.

It is to be hoped that in medicine there will be no lessening of sane, scientific investigation, but a great lessening of much damfoolishness and a sincere effort toward the cultivation of good, roundabout common sense, which has never been superceded by a college diploma and which is capable of seeing things in general instead of being wholly absorbed by a single aspect.

In closing, I would refer the ultrascientific cubist in medicine to the saying of so wise a man as Huxley: "Common sense is science exactly so far as it fulfills the idea of common sense; that is, sees facts as they are, or at any rate without the distortion of prejudice, and reasons from them in accordance with the dictates of sound judgment."

VICIOUS NOTIONS IN THE VENTILATION OF SCHOOL BUILDINGS.

JACQUES W. REDWAY, F. R. C. S.

METEOROLOGICAL LABORATORY,

Mount Vernon, N. Y.

In an instructive article on school hygiene the writer expresses the opinion that the temperature of comfort, once determined for a room, should not be changed. If the writer has in mind a *fixed* temperature the opinion is not wholly wise. A fixed temperature—say, of 70°—may be comfortable at one time and very uncomfortable at another. The comfort depends very materially on the per cent of humidity. With the humidity between 50 per cent and 60 per cent, the temperature of comfort, as determined by Jameson in several thousand cases, is 65°. But with the humidity at 30 per cent, or at 80 per cent, a temperature of 65° is uncomfortably chilly. The temperature of comfort—the *optimum temperature*, as Dr. Huntington terms it, must vary. With the humidity at 30 per cent it is about 75°. Now a fixed per cent of absolute humidity is not desirable in a living room. On the contrary a change from 50 to 65 per cent between nine o'clock and noon on the whole is agreeable, but the difference is hardly perceptible to the conscious self.

Temperature perception, is much more acute; but it varies not only with the individual, but also with different parts of the body in the same individual. The face will tolerate a change in temperature varying from 20°, more or less, to about 95°. The fingers do not mind a temperature exceeding 100°, but they rebel at a cold materially below 32°. The neck, shoulders and chest likewise are sensitive to quick temperature changes. Nevertheless, as Elsworth Huntington points out, slight variations in temperature are highly conducive to comfort. A quick change of one degree Fahrenheit is perceptible by many individuals, but by no means is it perceptible to all—at least to the conscious self. The sensitiveness of the sub-conscious self is more acute.

Changes in humidity of the air are not easily recognized. A change from 40 per cent to 70 per cent is scarcely recognizable to the conscious self, but it impresses the sub-conscious self very strongly. The figures in this and the preceding paragraph, therefore, must not be taken dogmatically, however, for not only do individuals differ, but the same individual may differ

much in sensitiveness to temperature and moisture changes at different times.

But granting that the conscious self does not recognize considerable changes in the percentage of moisture, the fact that the subconscious self recognizes them is shown by the death rate in certain hospitals in surgical cases. In all cases the temperature of the wards was left at 70°; the humidity varied from less than 40 per cent to more thon 90 per cent. With the humidity between 50 per cent and 60 per cent the daily death rate was lowest. Above 90 per cent it was three times as great; at 40 per cent or less it was almost four times as great.

Perhaps the common plan of warming and ventilating a school building with the same air may have worked well in theory; it certainly has not worked well in practice. Warming a building is largely a matter of coal and muscle. The humification of the air goes with ventilation; moreover it requires a training that ordinarily the janitor of a school building does not possess. In the textile mill, the tobacco factory and the candy-making plant the humification of the air has become a science. In the case of theatres, school buildings and churches, the proper treatment of the air does not exist. Humanity and tobacco are on different planes of value.

Recently an opinion has appeared in various educational publications to the effect that, even if the air of a school room is vitiated, it will be harmless if kept in motion. Such a statement is not only rotten; it is idiotic. Any slight movement of the air that induces evaporation from the body, at the same time removing the products of evaporation, is refreshing, but the movement of the air does not remove any of the impurities. The stagnant air of an overcrowded school room is debilitating. Subconscious discomfort long continued is not conducive to that exalted mental condition which promotes the Christian beatitudes; and many a youngster has been disciplined for "breaking out in spots" for which the ignorance and indifference of school officials were to blame.

THE VIGOR OF HYBRIDS.

CASPER L. REDFIELD,
Chicago, Ill.

The doctrine of the selective death rate is one of those mischievous half-truths which should be buried and never resurrected. It means that the more vigorous survive and the less vigorous die, and that this selective action causes an improvement in the vigor of the race. It also means that this vigor is something determined for each individual in advance by heredity.

It can be readily understood how an offspring may inherent less vigor than that existing in the parents. Some may be lost in the process of transmission. But how can an offspring inherit more vigor than the parents had? "To inherit" means to receive from, and an offspring cannot receive from parents something which the parents did not have. The idea that there can be an improvement in vigor from generation to generation by a selective death rate is one which involves a belief in either spontaneous generation or special creation. To get such a result, something must come out of nothing.

The idea that the question of which of two persons shall die in a pestilence or epidemic is determined by the relative inherited vigor is fallacious. It means that a vaccinated person who survives an epidemic of smallpox was born with more vigor than his unvaccinated neighbor, and that the difference in original endowment is due to the subsequent vaccination. It also means a lot of other things which are very far from being true.

To get at the merits of this matter it is necessary to consider what this vigor, strength or power is, and how it is increased and decreased. What is this vitality which is characteristic of every living thing? Because it reaches to all living things it is desirable to examine it in animals and plants, and in protozoa and bacteria.

When a person takes physical exercise he does certain foot pounds of work, and foot pounds of work represent the energy we know in mechanics. It is known that when a person becomes much exhausted from long continued physical exercise he is more liable to suffer from bacterial infection than when not so exhausted. It is also known that if the physical exertions are severe enough and are continued long enough, death will result from no other cause than the exhaustion coming from such exertions. Hence, the removal of foot pounds of energy from the body is the removal of that thing which resists disease and which keeps a person alive.

When a person becomes chilled by exposure to cold he is much more liable to be attacked by some disease than when not so chilled. And if the exposure to cold is sufficient, a person will die from no other cause than such exposure. Chilling by exposure to cold is a process of removing heat units from the body, and heat units are a form of the energy we know in mechanics. Hence, energy is the thing which keeps us alive, and the removal of a sufficient quantity of energy will cause death. Vigor represents a large supply of energy in the system.

When a person takes up a course of physical training he exercises certain muscles, and if the exercise be repeated at regular intervals, those muscles will gain in strength in proportion to the extent to which they are exercised. In other words, the process of removing energy from the body, which causes death if carried to excess, is a part of the process of increasing the energy within the body when the removal is not carried to excess. The distinction is between a load and an overload. If the amount of exercise in some unit of time, as a day, is more than has been habitual, but is one which withdraws less energy than the system is capable of replenishing from food in the same length of time, then the exercised muscles gain in strength day by day. If the exercise per unit of time withdraws more energy than the system can replenish in the same time, then the system grows progressively weaker.

The distinction here made should be clearly apprehended because we will come to it again in other connections. The efforts required to meet and overcome any load which is more than was carried before but is less than the system can carry successfully, cause the system to gain in strength so that it is enabled to carry greater and greater loads. Any load which is greater than the critical amount is an overload, and the efforts made to meet this overload drain away the energy supply faster than it can be replenished, and the system becomes weaker and weaker until death overtakes it.

When the trotting horse is regularly trained and raced he will continue to gain in trotting power as long as his regular training continues, up to some point late in life. Race track records show this continuous gain up to seventeen years of age, and other records show it to still higher ages. The gain in trotting power, which comes from such continuous exercise may be, and frequently is, something greater

than anything which ever existed in any ancestor. That is always the case when a horse becomes a champion.

Cows are kept for milk production. Ordinarily, cows are regularly bred and regularly milked. Under such circumstances, a cow produces a certain quantity of milk when she has her first calf, a larger quantity when she has her second calf, a still larger quantity when she has her third calf, and so on up to at least her tenth calf. Tests in thousands of cases show this to be true for both Holstein and Jersey cows. They continually build up their milk-producing powers by continually exercising them.

In human beings it requires mental power to learn anything and remember it while learning a second thing. It requires more mental power to remember two things while learning a third, more yet to remember three things while learning a fourth, and so on indefinitely. From infancy to old age we carry more and more things in our memories, and the number things we thus carry is a measure of our growing mental power coming from continual mental efforts.

Antlers grow new each year from small spots on the head of a deer. Because the antlers are large and the spots are small, it requires an intense activity to produce them. As spring approaches, the skin over these spots becomes highly vascular and swollen with blood. These grow and gradually assume the form of the antlers, which for a time are in a soft and vascular state. Bone is gradually deposited within until in about four or five months all has become solid. The first year an antler consists of a single spike. The second year the spike is larger and heavier, and has one branch. The third year it is still larger and heavier and has two branches. And so on for an uncertain period. In Scotland, a stag having twelve points on each antler is called a "Royal stag." When there is a high degree of activity for several months of each year, powers continue to increase under such exercise.

A dope fiend suffers no inconvenience when taking a dose of poison great enough to kill several men. He does not survive the taking of such large doses because he was born with more powers than other persons. He does so because he began with small doses, such as any person might take and survive, and then gradually increased the size of the doses as his powers were developed by the exercise of fighting such poison.

Calmette and Fraser found that when small doses of snake venom, insufficient to cause death, are injected into an animal, temporary disturbance is produced; but after a few days the animal recovers, and a larger dose is required to produce any symptoms. By gradually increasing the dose the animal becomes more and more resistant, until a dose fifty times as great as would at first have produced immediate death can be injected without doing the animal any harm. (Enc. Brit.)

When we first attempt to raise a plant by cuttings we frequently find it difficult to make the plant grow in that way. But if we take a cutting from the first plant raised from a cutting we find that the second time it grows a little easier than it did the first time. If we take a cutting from the second plant grown that way we find that it grows still easier the third time, and so on time after time. Plants develop their powers by continually exercising them.

Henslow says that the hypocotyl of a seedling sunflower, which would break under a weight of 160 grams, bore a weight of 250 grams after being subjected for two days to a weight of 150 grams. After some further physical training, the weight was increased to 400 grams without causing injury. Here we have in plants something which corresponds exactly to the development of muscular strength by muscular exercise in animals. Similar and even more pronounced results have been found in the leaf stalks of black hellebore after five days of physical training.

Seedling peonies do not show their full capabilities the first time they bloom. The first season the flowers may be nearly single, but they steadily increase in size and number of petals for several successive years. The double pink daisy at first blooming frequently produces only single flowers, and requires four or five years to develop the double feature. Here we have in plants something which corresponds to the production of milk by cows, and the production of antlers by deer. Powers are developed by exercising them, and they are not developed in any other way.

When a man is vaccinated he is inoculated with what is known to be a weak form of smallpox virus. Because the form is weak, the man's powers are capable of overcoming it, and in overcoming it those powers are built up by exercising them so that the vaccinated man is capable of resisting the fully virulent smallpox when it puts in an appearance. If genuine and fully virulent smallpox germs be inoculated into a cow, they can survive at this place only when they come to some cow which at the time is in a weakened condition. But having found such a place and having lived for a time therein, they have developed powers they did not have before, and can now survive in the blood of strong and healthy cows.

Pasteur found that by cultivating anthrax bacilli on artificial food he got a strain so weak that it could survive only in the blood of some animal as feeble as a guinea pig one or two days old. But he found that after it had lived for a short time in such a feeble animal he could pass it along by inoculation to stronger and stronger animals, and that it gained strength with each inoculation until it could attack the strongest of animals. He also found that by inoculating oxen first with a weak anthrax virus, and then with stronger and stronger cultures, he could make such oxen immune to attacks by the strongest virus.

The flagellata are unicellular animals. During a period of about six years Dallinger subjected these animals to gradually increasing temperatures. Beginning with those normally living in water at 60 degrees Fahr., he found that they began to die as soon as the temperature rose above 73 degrees. But by holding the temperature for about two months at this point he found he could raise the temperature still higher. At 78 degrees he found another sticking point which he could not get by for eight months without causing deaths. But past this point progress was much more rapid. Several other sticking points were found, but he finally got these animals to live in water at 158 degrees, when the experiment was terminated by accident.

Here is an example of these little animals developing their powers of resisting the action of heat on their protoplasmic substance by exercising such powers as they had in the beginning, and such as they acquired on the road.

Czerny found that by a very gradual addition of salt he could get amœbæ to live in a four per cent. solution, but that none could survive when placed directly in a two per cent. solution. The two per cent. solution was an overload for amœbæ which had lived in pure water, but four per cent. of salt was less than an overload after the amœbæ had developed their powers by exercising them.

Davenport and Neal raised three lots of stentors, one in pure water and another in a solution of 0.00005 per cent. of corrosive sublimate. After two days these two lots were placed in a killing solution twenty times as strong as that given. Those raised in pure water died in 83 seconds. Those raised in the weak solution lived 304 seconds, or nearly four times as long. The third lot was kept in a solution twice as strong as the weak one, or one-tenth of the strength of the killing solution. These last died more quickly than those raised in pure water.

Here we have a case of one lot of stentors subjected to a load which was within the powers they had originally, and another lot subjected to a lo which was in the nature of an overload. When the load was greater than anything to which they had been subjected before, but was within their powers, those powers were built up by their exercise in carrying that load, and they were able to survive much longer under a killing load. When the load was an overload, that overload absorbed part of the powers they had originally, and they died more quickly when placed in the killing solution.

A hybrid is the product arising from breeding together individuals of different breeds, varieties, species or genera. The wideness of the cross in such breeding is determined by the extent to which the interbred individuals differ from each other. Because the individuals of one species or variety differ from those of another species or variety, it is evident that the germ cells of one species or variety must differ from the germ cells of another species or variety. Also it is evident that the germ cells of two varieties must differ from each other more than do the germ cells of two breeds; that those of two species must differ more than do those of two varieties; and that those of two genera must differ more than do those of two species.

In sexual reproduction, two germ cells unite and afterwards develop into a new individual by growth and repeated divisions. This union of cells and subsequent growth and division is a dynamic process which calls for greater or less exertions on the part of the cells involved. If the two germ cells which unite come from parents of the same breed, these cells are much alike and can unite and subsequently divide with a minimum of effort. If they come from different breeds, then these germ cells are somewhat unlike and it requires greater efforts on their part to successfully fit themselves together and then divide into new cells which constitute proper divisions of the united differences. If they come from different species or different genera, then the uniting cells are still more unlike, and this increased unlikeness calls for still greater efforts on the part of this living substance in making the proper union and divisions.

One of the phenomena of hybridization is that the hybrids are commonly more vigorous than either parent. This extra vigor does not come from nowhere out of nothing. Vigor means physical power of some kind, and powers are developed in living organisms by exercising those previously in existence, and in no other manner. Primarily, the vigor of hybrids is increased power of growth, and increased growth means increased power of cell division. We can trace this increased power in hybrids directly to the extra efforts (increased exercise) which the unlike germ cells had to make to form a proper union and then proper divisions of the mixture of differently organized substances.

Another thing observed in hybridization is that the extent to which the hybrid is more vigorous than the parents increases with the wideness of the cross up to a certain point, after which there is a decrease of vigor in offspring. In wide crosses the offspring are abnormally weak, and if the cross is still wider there is a failure to develop. In some wide crosses, as in the mule, there is a gain in physical strength but a loss in fertility. In other wide crosses, particularly in plants, the new individuals are both stunted and sterile. In extremely wide crosses in some fishes, there will be a union of germ cells but a break down in segmentation soon afterwards, so that the embryo never is completed.

The explanation is simple. Each increase in load increases the efforts of the individual to carry the load, and powers are increased in proportion to the extent to which they are exercised. This is true up to the point at which a load becomes an overload, beyond which point each increase of load decreases powers and hastens death. Increasing the wideness of the cross increases the load upon the cells of the new individual until the load finally becomes an overload and causes a breakdown and a failure to develop.

527 Monadnock Block.

Reaction of the Saliva in Disease.

Forty-eight observations were made on seventeen individuals suffering from various diseases. The reaction of the salivas fell within the limits found for normals (pH 6.0 to pH 7.3) except in two cases. Three patients with typhoid fever showed a normal salivary reaction. In two instances of pernicious anemia the reaction was at the lower level of normal on several occasions. Two cases of chronic nephritis had salivas which were distinctly more alkaline than any of the normals, but two other cases of nephritis gave high readings although one of them had an alkaline urine at the time. A series of five cases of acute streptococcus tonsillitis yielded variable readings within normal limits except for a single observation of 5.8. A diabetic with marked acidosis gave a reading of 6.2. A subsequent reading of 6.0 was obtained at a time when the acidosis had almost cleared up, although the reaction the day before had been 6.9.

A summary of the study of freshly expectorated saliva from normal people shows that the reaction tested by the colorimetric comparison method may vary within considerable limits 6.0 to 7.3—although 80 per cent. of the specimens fell within the range of 6.6 to 7.1. The reaction varied in different individuals and in the same individual at various times apparently without any definite or constant relation to the time of day or to the ingestion of food or fluid. It was temporarily altered by mouth-washes such as Dobell's solution, but only for a short time (30 minutes). Internal administration of acid and alkali did not seem to influence the reaction of the saliva in any definite manner. Observations on a group of patients suffering from a variety of diseases showed no constant relation between the reaction of the saliva and any particular disease, although the variations covered a slightly wider range (pH 5.8 to pH 7.5) than was found in the case of the normal group.—(*Bull. Johns Hopkins Hosp.*, April, 1920.)

Edema

The disposition of "renal" edema is determined in the first place by looseness of the cellular tissues, and in the second place by gravity; the disposition of "cardiac" edema is determined in the first place by gravity, and in the second place by looseness of the cellular tissues. "Renal" edema is first apparent, or is more marked, in the early morning; "cardiac" edema is first apparent, or is more marked, in the evening.—(*Practitioner.*)

The Man Young at Fifty

PERIODICITIES, CYCLES OF ENERGIZING ORGANIC RYTHMS—II.

Critical Epochs in the Reproductive Cycle.

J. MADISON TAYLOR, A.B., M.D.,
PROFESSOR OF PHYSICAL THERAPEUTICS AND DIETETICS, MEDICAL DEPARTMENT, TEMPLE UNIVERSITY,
Philadelphia, Pa.

In women from the early origins of reproductive activities till they cease at the climacteric or "change of life," a regularly reccurring cycle of ovarian energizing is completed each month, with special and marvellous features all their own. During gestation, from the moment of conception till the child is born, this cycle is longer, embracing ten lunar months of twenty-eight days each, but of equal regularity.

Whether similar, though less graphically marked rhythms or periodicities, occur in men is a question still under discussion. Much ground exists for belief that they do. To be sure this rising and falling of sexual tides in the male of the species is less significant, and so far as we know, less important. Yet, if the facts can be established as would seem highly probable, they will probably be found to exert important influences on other interlocking functions, especially on variants in emotivity and impulse, also on mental states and on judgment. Hence they may serve to shed light on many obscure workings of the mind and body, especially on conduct, on self-restraint (inhibition-equipoise).

Is There a Male Climacteric?

A matter bearing intimately on the subject of marital relationships in middle life is to determine whether there be a male climacteric. True it is, in the male no well defined or plainly indicated group of phenoma occur, marking the subsidence of the sexual impulse, or power, or both.

As has been said: this sexual potency persists long after the limits usual in the female. A number of aberrencies arise, peculiar modifications, alterations, sometimes disorders which come to the attention of physicians, markings the subsidence of this function, in the male. Therefore the subject is one which needs a better, a more popular, as well as a professional understanding. Men, as they pass into the fifth or sixth decade, owe it to themselves to select and be confidential and candid with a physican of choice, to confer with him frankly and promptly upon any unusualness or anomaly in their sex functions or sex organs. By this wise course, a multitude or minor and some major blunders, may be forefended and the effects of disorders checked or limited, which might readily pass on to chagrain or disablement.

Let me refer here to one phenomena intimately connected with the sexual organs in the male and having some points of contact with subsidence of function, which is almost inevitable, viz., enlargement of the prostate gland. Some happily escape its worst effects. The prostate is a glandular mass of tissue which surrounds the outlet to the bladder (the urethra). As the sixth decade approaches we may expect the prostate to become more dense, and to interfere mechanically with the caliber of the urethra by compressing and causing the man to rise in the night, sometimes more than once, to pass urine. The effect of overdistension of the bladder acts seriously in many ways. The kidneys may become infected or otherwise injured.

If prostatic changes progress rapidly a time arrives when suddenly it becomes impossible to pass urine, it may be temporarily, or it may be not at all. Thereupon the necessity arises for using an instrument for drawing off the urine (catheter) and thereafter a pathetic series of discomforts and perils arise. Fortunately much can be done to prevent the worst effects and to remedy them to a certain extent.

This prostatic episode, common to all men, will serve to emphasize the need of seeking prompt advice, of not delaying an instant when symptoms arise, and moreover of following conscientiously expert counsel in order to escape a pitiable doom.

The subject of the male climacteric has been studied by Dr. Archibald Church, of Chicago, with extreme care in connection with certain nervous and mental diseases to which it appears causally related. Certain of his conclusions are here summarized sufficient for the immediate purpose. They have been formed upon abundant observations and among the findings of others.

He states his opinion that a sexual cycle occurs in men as well as in women, which is really a manifestation of a general law of energy, a more or less distinguishable monthly variation or curve.

In both sexes a rhythm or fall of blood pressure occurs at different intervals; the fall in women is at or near the menstrual period; also it is observed before menstruation is established, and after it has ceased.

In the female the periodic drop in blood pressure is usually preceded by a preliminary rise for four or five days before the chief fall takes place, accompanied by a feeling of elation. While most of the observers cited reach the conclusion that a similar twenty-eight day cycle exists in males, and while yet unable to conclusively demonstrate it, they all agree that there can be no doubt as to the monthly rise followed by fall in blood pressure.

Coincident with the preliminary rise of blood pressure there is in each one a period of well being, of superior activity in all directions and an apparent increase in powers of resistence to fatigues and infections. Along with the fall there is also a tendency to digestive impairment, shown in lessened appetite and bowel movement. Some observers have noted also a tendency toward a rise in weight about every two weeks with changes in the urine (phosphaturia), similar to that occurring in women just before menstruation. These facts and others adduced lend cogency to the probability that the periodicities mentioned bear upon sexual rhythms.

Neurologists have repeatedly called attention to associated fluctuations in the mental states in male patients, neuropathic and psychopathic disorders. These are observed to be most marked at the well established periodic alterations in blood pressure, along with disorders in digestive functions.

The forms are minor nervous and mental disturbances, anxious feelings, varying from anxiety neuroses, with obcessions and phobias and other psychopathic phenomena, impairments of emotional tone,

whimperings, self-pity, all the way to pronounced hypochondriasis. Especially significant is the early morning sleeplessness, with gloom and forebodings.

Attacks or fits in epileptics often occur with regularity every twenty-eight or thirty-four days. So, too, of migraine which exhibits periodicities of from twenty-four to thirty-six days for a life time, and then subsides at the fiftieth or sixtieth year. Similarly also with women in whom their sick headaches cease at the change of life. Periodic drinking in men may be amenable to no known remedy and yet they usually follow the same rule, ceasing at fifty or sixty.

The Menopause.

At about the middle years in women there occurs "a change of life," called the critical period or menopause. This is supposed to be fraught with many dangers and grave disturbances. The significance of this epoch, or climacteric, has been grossly exaggerated. By no means is it necessary to look forward with dread to the cessation of menstruation. Man reaches the period of highest development at about forty-one years, woman at thirty-nine. The following seven to ten years may be called the age or epoch of invigoration in both sexes. The tissues have then become most stable and the nutrition of the body is at its best. It is one of the epochs of development and is accompanied by characteristic features. In human beings, these are marked as follows: dentition, pubescence and the climacteric of age. All are practically developmental phases. The last is usually accompanied by degenerative changes in one or another vital organ. In women there is another mentioned above, styled the change of life or menopause. Modern investigations seem to demonstrate beyond a doubt that this change of life is merely a conservative process of nature, to provide for a higher and more stable phase of existence. The menopause is an economic lopping off of a function no longer needed, thereby preparing the individual for different forms of activity. It is in no sense pathologic, nor is it physical or intellectual decrepitude, but belongs to the age of invigoration, marking a fullness of bodily and mental powers. Rather more decided changes occur in the blood-making and blood-elaborating organs in women toward the end of life, than in men. Man's greater activity enables him to escape this contrast, because as a rule he has called more upon the neuro-muscular mechanisms in using up food material. The life of woman leads her to become more impressionable and introspective, to watch her menstrual cycles, to brood upon "feelings," to make undue allowance for exigencies which may arise and to expect that various discomforts and disturbances must occur. If her mind becomes fixed upon one small ailment or other, especially if it be correlated with this function, exaggerations tend to arise, an over-attention which is practically hysterical (self-suggestible) even in the best of women. Such disurbances as do arise about the time of the menopause are due largely to a normal impairment of the organism, to then offer the same degree of resistence to self-formed and other poisons. The great eliminating organs then begin to exhibit a gradual lessening of functional activities. Exhaustions, especially such as are induced by over-play of the emotions, fatigue, by grief, anger and fear, are well known to weaken self-protective powers.

Coincident with the so-called change in life, women are usually then burdened with the maximum of cares and labors, and too often also the severest anxieties, responsibilities and griefs assail. If she be unmarried a species of self-conscious (spiritual) awakening occurs in some; in others, a revolt, a realization that youth is now utterly past. In married women, disappointments which follow upon enthusiastic expectations at the meridian appear the heaviest, and numberless strains come to be thrust upon the organism. It must be remembered that the greatest maturity of powers exists at this time, hence a woman should be capable of meeting all exigencies. The whole episode may be summed up in a few words: if a woman, married or single, will so order her life that she shall retain to the best of her ability her physical and mental vigor, and if she also sets her face sedulously toward looking upon the bright side of existence and ignores emotional impressions of a disagreeable character, she has nothing to fear as life moves steadily on to the downward incline.

Habits, Customary Ways of Doing Things, Habitudes, "Automatics."

However useful knowledge and experience may be, also familiarity with rules and principles of behavior, most if not all our daily conduct is regulated by habits. The habitual processes, both mental and physical, become so strong that they dominate not only the individual, but also the group, nations and races. Habits formed in a locality during one epoch impress the citizens maturing in that epoch. Another epoch and different groups of impressions alter points of view.

Habits are motor modifications in nerve substance, which gradually become stable and accurate through repetitions of actions, whereby they grow more easy of performance. Thus is memory made the product of countless actions which have been performed many times before. Hence we remember easily, and are swayed by, sense impressions most frequently received, and repeat acts most often performed. Thus many nerve-paths are worn deep in brain cells or fibers, also shorter and easier routes are acquired, through connecting or associated structures. Thus habit constitutes organic memory, which may or may not be accompanied by active consciousness.

To this receptor—effector system, is added yet later a third type of cell situated between the receptor and the effector designated by G. H. Parker, the protoneuron, the ancestor of the neuron in more complex types of animals. The nerve net is thus evolved. The migration inward of this nerve net with its diffuse transmission of impulses leads to the beginning of the adjustor organ, in that the transmitting fibres arrange themselves into tracts showing polarity of conduction. The protoneuron of the nerve net evolves into the neurons of the nervous system.

It is to the last degree unfortunate when our early habits, our dynamic associations, were not sufficiently varied and exact to make sure of precision in responses when we need them as conditions for those specializations which constitute efficient life-work. This attribute or function is automatism; we speak of a man who possesses these as using his automatics, e. g., in art, industry or science, or in surgery.

To attain useful facilities in any line of human endeavor the training of the senses should be systematically pursued from the earliest moments of attention. Sense perceptions open up the way to concept formation, but are of use only when supplemented by motor impulses. Every normal sense impression tends to pass into movement, and is useful

in so far as it does so; in short conditions for motor development depend upon sensory impulses.

Mental visualizations, interpretations of images, concepts of form, can arise only through motor outflows. Ideas are of potency in proportion as they include the elements of motion; the impulse to do. They prove of little use until they do do, perform, achieve.

Thought is a word much in use, but the act of thinking is by no means a constant process, even with the most intelligent. Much of what is called thought is, in familiar instances, merely automatic reaction aroused by some sensory impulse. To think deeply, to exert intellectual force, is rarely needed in the day's work; but every human being has constant need of myriad accurate automatisms, the product of early and varied associations of sense impressions along with muscular acts. The product of these thought efforts is the idea, the memory image. When rightly formed full reactions occur between observation and application, they become unerring guides to conduct. They serve most of life's purposes and are absolutely essential, thus becoming in the main dependable. Promptings must, of course, be incessantly modified by intelligent restraint, inhibition, the checking of over-action, judicious selection of courses of action.

Then also repeated curbing of impulse to do, conscious suppressions, become irritating, distressing and ultimately hurtful. The good habit, the conservative custom of restraining impulse to do undesirable or wrong things is one to be cultivated.

As a more technical explanation of the mechanism of habit formation may be quoted from a review of a little book by G. H. Parker, "The Elementary Nervous System" (J. B. Lippincott Co., 1919):

"Effectors appear before any form of nervous tissue. Later there is added a receptor or modified cell which influences the effector more quickly because it is more sensitive to external stimuli, chiefly physical, which originally acted on the effector organ directly. It is the trigger to discharge the underlying muscle."

The Significance of Minor or Obscure Disturbances of Poise.

Often there arises in an individual whose general health is not recognizably impaired, a disturbance of functional equilibrium out of all proportion to the evidence. Such exigencies occur during full health or during satisfactory progress from illness or injury. Sometimes errane energies come to equilibrium spontaneously, or they may fail to do so till long after there is reason to expect they should.

We assume that this relief is due to our remedies; it is more often in spite of them, of our bungling ill-chosen efforts to coerce or aid nature. Indeed from just such unclear starting points, it may readily transpire that protracted and baffling disorders grow, till some indications show a new departure for disease process, more or less serious.

Now, if we were wise enough to have applied precisely the right kind of help at the outset, these later disorders might not, in all probability would not, have occurred. Let us consider what might have been the explanation of most of these departures from the norm.

Of course, we can suggest a number of familiar starting points capable of accounting for their initiation from mere psychic perturbation, metabolic confusion, focal sepsis to specific infections or combinations of any or all. Such obscurities are encountered by every clinician, and as a rule we satisfy our solicitude as we are furnished by the plain declaration of some frank process or competent starting point after it has declared itself. By that time, most of the damage capable of being created has been done; or in case none such is revealed, we satisfy our consciousness with the comforting assurance that we applied the remedy indicated, some simple medicament, a nerve tranquilizer or an appeal to reason or feelings.

As a matter of fact, the organism as a whole did come back to equilibrium, and such remedies we did apply might have done little to influence poise other than as a basis of suggestion—always helpful in readjusting disturbed cycles of forces. This suggestive agency would however not have worked had there been deeply baneful influences at work capable of seriously disturbing the energy rythms.

May we not reach back to primary causes which, had they been recognized, readjusted, or had antagonistic forces been early brought under control, the morbid condition would have been nipped in the bud?

Let me review a few well-known points for consideration, they may seem platitudes, and must be somewhat dogmatic:

Health is the product of the sum or inherent forces —bio-dynamics—exerted from within or without, or both, and held in poise. Forces consciously exerted from within are chiefly through the consciousness, purposive control, equinimitas, along with judicious adaptation of outside mechanical or bio-chemical or biologic, agencies.

How is health maintained? By a nicety of poise between the governing mechanisms. Force, bio-dynamic or bio-kinetic, is generously over-abundant. All we need concern ourselves with is its transformation, transmutation and application.

There must be reputable means at our command to form diagnoses more correctly and earlier. How are we to set about this research, this quest?

Having been engaged in the effort to interpret significances from the bio-kinetic or bio-mechanistic standpoint—somewhat late in life to be wholly successful—I can at least assert wth confidence, that anyone who will make the same efforts, will now find illuminating scraps of information all along the literature. One such observer can achieve little, but when thousands are focusing attention on this field, its richness will become apparent. The subject demands new points of view, new forms of interpretation, of synthesis and judgment.

As my friend, Prof. L. K. Anspacher, said of a certain author:

"He is a real Marc Anthony, telling us many things we already know, but gathering together our discrete and unassociated scraps of observation into the interpretation of generic laws of which we are the indices. After all is said and done, knowledge in itself means little, but the large generalizations that correlate our minute atomic bits of informaion into a sort of crystal monolith of interpretation and realization, are the really important contributions. He (the author referred to), has an amazing and perseverant insight into causes and a fertile penetration that enables him to give inclusive lowest common denominators to all our petty futile numerators."

The key to mental poise, hence to well-ordered effort and consistent results, is giving fair, consist-

ent attention to the subject in hand. Diffusion of attention is especially to be avoided in speech, as in an effort to make a clear impression. Stuttering, *e. g.*, is shown to be caused by suspended effort and to speech interference, allowing too great laxity in the plan or form of utterance. An element of indecision comes by mental groping, an effort to select one of two or three suitable or possible words or phrases, allowing some doubt to arise as to what it is best to say, in being too critical of the terms or arrangements.

Stuttering is disjointedness in speech or thought or of both at the same point of determination.

An efficient method of cure is to speak against an obstacle. Take the instance of Demosthenes, who placed pebbles in his mouth, and the effort made to enunciate in spite of them, taught him conscious control of the mechanisms of speech. This is similar to adapting the eye of the student to the microscope. He must learn, not only to see, but to distinguish. Some weeks elapse before he can even *see* what is in plain sight.

Assert to oneself, "is this or that worth while to say or to do?" If so, then *do* it or say it. Refuse to allow any trivialities to deter, to change, to deviate attention.

Always conditions exist in any environment capable of diverting attention. Should they obtrude, ask ourself, "shall I permit this distraction, or go steadily ahead and execute purpose as designed?"

Purposive control. Am I captain of my own speech centers and mechanisms?

The one reliable stimulus of muscle coördination of structures concerned in articulation, phonation, is received by the motor cortex through ideation.

Neither rest nor stimulation will alone always accomplish what one wishes to achieve, but a combination of the principles of stimulation offset by rest of a part through passive movement, massage, together with directed ideation, will bring results.

Routine as a Blessing or a Harm.

Here we come to the regulation of acquired or habitual cycles of energizing, chosen periodicities, in the form of long practiced doings, beaten paths, custom, routine. Habitudes aid much in economies of effort. Through customary acts we simplify exertion, we defend ourselves from conscious strivings.

Beyond a certain point they pass into tedium, irksomeness and induce revolt, conscious or unconscious. A dreary routine or treadmill grind thus becomes a bane, while the antidote is variation, innovation, a blessed relief of tension.

Oftentimes a medical adviser is puzzled by an unaccountable weariness, fatiguability, agitation, or depression in a mature adult, a progressive lowering of functional action, digestive, circulatory or other. Whatever else be amiss, acute or chronic, in body or mind, the real cause will be found in a giving out of energies due to unsupportable monotony, an overmastering sense of being driven beyond endurance by unending self-appointed tasks, irritating responsibilities.

These obligations may be similar to those which were comfortable enough during one's prime. The remedy is not only plain but imperative; a radical change.

The dogged, often unrealized struggle to keep up the pace, to acquire merit by persistence, must be overborne. The high pressure must now be reduced to the safety point, which is not what it was during early maturity.

Achievement can be now just as large as then, at least in full accord with reasonable expectations, but not to unreasonable demands.

The key to this novel situation is a revision of habits and methods consistent with altered conditions. Wise men do so instinctively. Those who fail to do so omit to use for themselves the same judgment they employ for those whom they advise.

The uncertain factor is oftentimes some degree of impaired self-confidence, suspense, apprehension, one is no longer fulfilling his expectations of himself.

To be sure senile changes in the mechanisms do insidiously arise. Local areas of deterioration or degeneration do begin. Spots, groups of cells or secretions do go to the bad, but they need not be hastened by persistence in pressure. Degenerative changes may be indicated by inadequacies, organic or neuronic, interferences with uniform oxidation, elimination, in short, by accumulations of toxic waste products, foreign proteins, demineralization and the like vicious cycles.

In one whose temperament has heretofore been serene, whose output of energy has been kept up to norm through harmonious motor discharges, the deterioration will be slower, so slow as to simulate Oliver Wendell Holmes' famous "One Hoss Shay."

In one of Edward Stewart White's inimitable tales of the great open he cites a notable instance of an ancient French Canadian frontiersman of vast powers, prolificness, herculean frame, at nearly a hundred years still chopping firewood, but in a slow deliberate effort-saving, yet practically effective way. Another dramatic example, a famous Indian trapper who, alone some hundreds of miles from anywhere, is suddenly forced to realize through a certain giving way of the exquisite smoothness of his perfect mechanisms, the need to husband powers forever afterward, not only to economize but to survive.

The particular recommendation offered here is that the fine art of renewing energy shall be cultivated, especially by nice adaptations of opportunity with choice and performance. In those of failing powers a revision of habits is needed, and good ones substituted for outworn old ones.

Remember that energy in any one is usually more than enough if only it be conserved through renewals, but the mechanisms of energy transformation, transmission and application are giving way. Hereafter the game must still be played but now it is a losing game, a retreat which should at least be masterly, a slow yielding of ground once occupied or won. For one thing while the same exploits may be performed, the succession of them must be fewer and more deliberate. Senescence demands longer and more frequent intervals for recuperation.

A notable accomplishment is the taking of brief naps, or recumbencies, then up and at it again. If not sleep then full relaxation—*full*, this is mandatory, a letting go all over.

A factor in rest is a draining of the blood from the legs. Lie down, or sit, and place the feet six inches higher than the hips. Thus the brain vessels are replenished. They are more rigid than they were. Arbiters of manners frown upon the country men who sit on the porch with their feet on the railing, but those whose legs are over-tired know the value

(Continued on page 240)

The Medical Times

A MONTHLY JOURNAL
OF
Medicine, Surgery, and the Collateral Sciences
ESTABLISHED IN 1872

EDITED BY
H. SHERIDAN BAKETEL, A.M., M.D., F.A.C.P.

ARTHUR C. JACOBSON, M.D.
Associate Editor.

Contributions—EXCLUSIVE PUBLICATION: Articles are accepted for publication on condition that they are contributed solely to this publication.

When authors furnish drawings or photographs, the publishers will have half tones and line cuts made without expense to the writers.

SUBSCRIPTION RATES:
(STRICTLY IN ADVANCE)

UNITED STATES . . . . . $1.00 per year
(Including Alaska, Cuba, Mexico, Porto Rico, Hawaiian and Philippine Islands)

CANADA . . . . . $1.25 per year
FOREIGN COUNTRIES IN POSTAL UNION . . . . $1.50 per year

SINGLE COPIES, 15 CENTS

Definite written orders for THE MEDICAL TIMES are required from all subscribers, to whom the journal is thereafter regularly forwarded.

Notify publisher promptly of change of address or if paper is not received regularly.

Remittances for subscriptions will not be acknowledged, but dating on the wrapper will be changed on the first issue possible after receipt of same.

All communications should be addressed to and all checks made payable to the publishers.

MEDICAL TIMES CO.

ROMAINE PIERSON, *President and Treasurer*
H. SHERIDAN BAKETEL, *Secretary*

15 Nassau Street, - - - New York

NEW YORK, OCTOBER, 1920

Therapeutic Restrictions Under Prohibition

According to Mr. Richard M. Cahoone, late United States Commissioner, prohibition is simply a blind to give employment to a swarm of worthless hirelings. Mr. Cahoone resigned in disgust, not being interested in enforcing laws at the instance of a swarm of special agents and inspectors.

The physician finds himself in a fine mess as a consequence of prohibition legislation. It was with much pleasure that we noted the vigorous protest lodged the other day by the leading members of the Boston profession against the humiliating restrictions to which the practitioner is subjected at the bedsides of those of his patients requiring alcohol. It is a matter of wonder to us that the active resistance of the Boston men has not been duplicated everywhere.

Certain Angles of Psychopathology

There are two phases of morbid psychology upon which much light has been thrown of late. One of these relates to mob violence, the other to vice hunting.

With regard to the vice-hunting phase, Mr. Patrick Kearney (*The Freeman*, Aug. 18, 1920), has published a keen analysis of the taboos of the vice agents, showing very clearly what is wrong with the psychic constitution of the vice societies in general, and voicing the hope that some day legislation, perhaps under the guidance of psychiatrists, may come to recognize the neurotic quality of their manifestations, and prevent those who originate them from attaining to the degree of power which is held to-day by the Society for the Suppression of Vice.

The puritanic smut-hound is a psychically sick man. He is a victim of repressions which cannot be resolved as are those of the average individual. The professional vice agent is in a condition that very closely approaches the compulsion neurosis, a mental state in which certain things become "taboo," to be avoided with scrupulous care, to be destroyed, or to be kept from others. The selection of those things which are to be tabooed is always fantastic on the surface, though governed by a strict subconscious logic. The repression creates the taboo, and an otherwise sane individual will go to great lengths when driven by a violent repression.

The vice agent, continues Mr. Kearney, is one who has made taboo those particular pieces of literature which stand symbolically to him for those components of his personality which he has repressed. He is not conscious that he has made them, because they date back to early childhood. The taboos are so strong that they must not merely be avoided, but must be entirely removed from the world at any cost and in spite of all protestations on the part of others. Thus is revealed why he can read one "immoral" piece of literature unmoved and be driven by another into a frenzy of destruction, although to his conscious standards the latter may be less "immoral" than the former. It all depends on what particular repressions are touched.

Mr. Kearney makes clear why censors invariably disagree among themselves. Each one of a number of censors will condemn different parts of a work of art, be it a play, a movie, or a book, and will be unable to understand why the others fail to agree with him. The taboos, of course, being governed by the various repressed components of the censors, naturally lead to a lack of standardized selection, since the components of no two indivduals are exactly alike.

With respect to the mob-hunting phase, we have lately been furnished with an illuminating opinion by Mr. Justice Bourquin (*Supreme Court Reporter*, July 1, 1920), which has to do with the harsh treatment of a petitioner before the court at the hands of a mob bent upon vindicating a peculiar brand of patriotism and at the hands of a lower court (convicted of sedition on frivolous charges, fined $500, and sentenced for at least ten years at hard labor), and which runs in part as follows:

"'In the matter of his offense and sentence, obviously the petitioner was more sinned against than sinning. It is clear that he was in the hands of one of those too common mobs, bent upon vindicating its peculiar standard of patriotism and its odd concept of respect for the flag by compelling him to kiss the latter—a spectacle for the pity as well as the laughter of gods and men! Its unlawful and disorderly conduct, not his just resistance, nor the trivial and innocuous retort into which they goaded him, was calculated to degrade the sacred banner and to bring it into contempt. Its members, not he, should have been punished.

"'Patriotism is the cement that binds the foundation and the superstructure of the state. The safety of the latter depends upon the integrity of the former. Like religion, patriotism is a virtue so indispensable and exalted that excesses pass with little censure. But when, as here, it descends to fanaticism, it is of the reprehensible quality of the religion that incited the massacre of St. Bartholomew, the tortures of the Inquisition, the fires of Smithfield, the scaffolds of Salem, and is equally cruel and murderous. In its name, as in that of Liberty, what crimes have been committed! In every age it, too, furnishes its heresy hunters and its witch burners, and it, too, is a favorite mask for hypocrisy, assuming a virtue which it hath not. So the mobs mentioned were

generally the chosen and last resort of the slacker, military and civil, the profiteer, and the enemy sympathizer, masquerading as super-patriots to divert attention from their real character. Incidentally, it is deserving of mention here that in the records of this court is a report of its grand jury, that before it, attempts had been made to prostitute the federal Espionage Law to wreak private vengeance and to work private ends.

"'As for the horrifying sentence itself, it is of those criticized by Mr. Justice Holmes in Abrams' Case, 250 U. S. 616, 40 Sup. Ct. 17, 63 L. Ed. 1173, in that, if it be conceded trial and conviction are warranted, so frivolous is the charge that a nominal fine would serve every end of justice. And it, with too many like, goes far to give color, if not justification, to the bitter comment of George Bernard Shaw, satirist and cynic, that during the war the courts in France, bleeding under German guns, were very severe; the court in England, hearing but the echoes of those guns, were grossly unjust; but the courts of the United States, knowing naught save censored news of those guns, were stark, staring, raving mad. All this, however, cannot affect habeas corpus. It can appeal to the pardoning power alone.'"

Chiropractic Defined

The expositions of the Einstein theory seem quite lucid when compared with the following definition of chiropractic, offered in a bill passed by the Senate and General Assembly of the State of New Jersey and signed by the Governor, regulating the practice of chiropractic. If such legislation can be gotten away with, it seems to us that there is no hope for the medical profession:

Definition of Chiropractic: The term chiropractic when used in this act shall be construed to mean and be the name given to the study and application of a universal philosophy of biology, theology, theosophy, health, disease, death, the science of the cause of disease and art of permitting the restoraion of the triune relationships between all attributes necessary to normal composite forms, to harmonious quantities and qualities by placing in juxtaposition the abnormal concrete positions of definite mechanical portions with each other by hand, thus correcting all subluxations of the articulations of the spinal column, for the purpose of permitting the recreation of all normal cyclic currents through nerves that were formerly not permitted to be transmitted, through impingement, but have now assumed their normal size and capacity for conduction as they emanate through intervertebral foramina—the expressions of which were formerly excessive or partially lacking—named disease.

Of what type of men must the New Jersey Legislature be composed, and from what level of society must the Governor of that State be drawn, when such officials can seriously consider and approve an act couched in the foregoing language and encouraging such a system?

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

The Dangers of Specialization

The proposition that the real criterion of intelligence is in the degree of power of correlation is hardly a new one; but it needs to be restated with considerable emphasis just now when science was never subdivided into so many specialisms and when we have allowed the perfectly healthy concept of the all-round man to acquire a mysterious stigma. Other ages were more sane. Aristotle, Leonardo da Vinci, and Shakespeare were probably regarded by their contemporaries as fairly level-headed, all-round man; yet that fact can hardly be said to have tarnished their intellectual reputation. To-day we mock at the all-round man simply because it is so devilishly difficult to be one. The temptations to fly off into erratic specialization are too multifarious and too compelling. Yet in his heart no one knows better than the scientist himself that no really creative work will be done by him even in his own field until he can rise above his specialty and survey it objectively; until, in a word, he can apply common sense to his technical problem when the technical resources are exhausted.

The humanist has a perfectly valid case for his assertion of the supremacy of the all-round point of view; and never ought he to press it more boldly than to-day. He ought not to be timid about asserting that if a man has learned really to think straight on one subject, the chances are ten to one that he will think straight on most others, for the essence of thinking straight is always the same. Now, more than ever before, we ought to be especially wary of the specialist who makes an egregious ass of himself nearly every time he expresses any opinion on any subject other than his own. It is an odds bet that if we examined such a person more carefully, we should find that in his specialty he was doing his work solely by rote and formula; rote that he has unintelligently assimlated and formula that he does not fully comprehend.—*The Freeman*, July 14, 1920.

(*Continued from page 238*)

of this. The French soldier is instructed to lie down and elevate the feet, once in so often, in marching.

Cycles in Feeling Tones, Emotions.

One of the most practical domains of the cycles of energizing lying open to the student of each and all of the natural sciences, is the physiology of the emotions. In his work: "Bodily Changes in Pain, Hunger, Fear and Rage," Walter B. Cannon makes an epochal contribution to "the groundwork upon which psychology and physiology blend in the explanation of human activity and human ills.' Here is an exceedingly instructive book for all classes of readers. It not only furnishes the basic facts for the specialized worker in psychology and medicine, but it also introduces the lay reader to the interplay of facts between body and mind "in a manner to fascinate him with these marvels of science." Not only are the outstanding interrelationships of activity in brute, and equally of human nature, explained but also the more obscure processes by which the glands of internal secretions, under similar control, are made accessible to emotional stimulus.

Thus the primary impulses, determinants of conduct, and behavior, self-preservation, reproduction, and the like are made accessible to understanding and to application in the social, domestic and industrial domains.

Through the dominant emotions are the self-adjustments made, and the satisfaction of all organic needs, nutritive, reproductive and communal.

"As all these are under the control of the threefold division of the autononomic nervous system, its interrelation of the emotions has its effect in the reciprocal antagonistic action of the parts of this system."

The author designates the cranial division as: "the upbuilder and restorer of the organic reserves, the sacral as the servant of racial continuity, and the sympatheticc as the preserver of the individual."*

Normal functioning through mind and body is thus brought to a clearer, more intelligible understanding. The wide range of emotional disturbances is thrown into a new light and is given a more effective basis of aproach to body and mind functioning.

*The quotations are from a review in the New York Medical Journal, June 5, 1920.

In presenting what he calls "a new theory as to the cause of sleep," Dr. E. F. Bowers (MEDICAL TIMES, July, 1918), says in part: "As Sir Oliver Lodge and many world's greatest scientists concede that what we know as 'matter' is really only a form of vibration, just as are light and sound." In other words matter is a mode of motion. Matter, it is contended, is stable only so long as there is no interference with its normal rythm. What we know as "matter" retains the characteristics peculiar to its form only while it vibrates at a rate normal to itself.

Supposing a standard minimum and maximum rate of vibration represents the activity of a living healthy cell, between these two extremes the cell functions with healthy energy and vigor.

Between certain narrow limits of fluctuation in vibratory rate, life and health will persist. This brings us to an explanation of sleep: The processes of active life cause a (constant) breaking down of cell structure which loads the system with fatigue toxins, hence the cells are poisoned by their own end products. During sleep these are eliminated most rapidly and in proportion as the sleep is sound, complete, is the elimination complete. Other methods are available to force elimination, e. g., oxygen.

Yet sleep is a necessity and no amount of mechanical or chemical or other artificial combustion of end products will suffice. Any postponement of nature's imperative demand for sleep can be postponed in safety for only a few days—ten at the most.

Sleep affords the most favorable opportunity for oxidizing effete material and is the first step in energy renewal. It is probable that during sleep the human dynamo, the vital system, is recharging itself, is accumulating another supply.

During sleep the rate of vibration is equalized or normalized—by the development within the body and absorption into the organism, of a definite amount of vital force, "cosmic energy."

Repeated shocks upon nerve cells during waking life tend to exhaust energy so that the normal rate of vibration can no longer be maintained.

When kept awake the victim succumbs through a steady loss in the strength of the vibrations. Sleep is like cranking up an engine.

The more profound the sleep is the more rapidly is this renewal effected. The more normally is the rate of vibration restored, the more harmoniously are all functions carried on.

Since contact inhibits free vibration, if one asleep comes in contact with an object capable of producing a marked stimulation, especially with another person, the tone is influenced unfavorably. Thus the question arises: may it not be possible that the vibrations of the electrons comprising the body, having normal rythm during sleep, becomes jarred into abnormality of rythm by any disturbing factor, *e. g.*, another person in bed?

Correspondence

High Blood Pressure.

To the Editor of THE MEDICAL TIMES:

I have been at Byron Hot Springs, for the past two years. During the time, scarcely a week passes, that some man or woman—generally middle aged—does not apply to me saying "Do you think the waters here, taken internally and the baths will reduce my blood pressure?" The manner of asking the question and the general appearance, indicates the thoroughly scared condition of the individual.

A few days ago, a man aged 45 came to the springs, quite demoralized. He said he had been "turned down by a life insurance company for high blood pressure." I found that he had been rushed by an agent to the insurance office about 2 P. M.—of a very busy day—that he had partaken of a very generous lunch at 1 P. M., had indulged in a cocktail, small black coffee, and a very strong cigar, which was not his habit—blood pressure 185. I told him that his heart and arteries must be in excellent condition or his blood pressure would surely have been at least 200 under the circumstances. Next morning at 8:45 his blood pressure was 140. He said he "had never had a sick day"—but the "turning down" hung over him like a sword of Damocles.

I am constantly asked what is the normal blood pressure. When told there is no standard—no fixed figure for health—great surprise is expressed. Most people have gathered from newspaper advertisements—quacks, pretended health lectures—that if the blood pressure is more than 180 great danger may be expected—hence they live in fear of something, they do not know what, but will take any medicine that is given them. If medical men would explain to their patients that blood pressure is governed in well people, by many causes, such as age, occupation, temperment, excitement, time of day, habits, food, drink, etc., there would be fewer scared by quacks.

It is to be remembered that often high blood pressure is compensatory; not infrequently an effort of sound heart and arteries to drive too condensed blood through normal capillaries. These latter cases are relieved by drinking freely of water, and bathing in sufficiently warm water to dilate the capillaries. It certainly behooves members of the regular medical profession, who are constantly using the sphygmomanometer to study carefully and differentiate between the cases of high blood pressure, that are functional or temporary from permanent depending upon disease.

W. F. MCNUTT, SR., M.D.

Byron Hot Springs, Cal.

Public Health

The Fly a Carrier of Trachoma Virus

The direct transmission of the virus of the granulomatous conjunctivitis of hot climates is an obvious method of infection, and experiments have shown that the most trivial lesion of the conjunctiva renders the surface susceptible to inoculation. The possibility of infection by flies is also obvious; and in Tunis fresh cases of conjunctivitis occur most frequently at the beginning of the autumn, when flies are most numerous and troublesome.

An Algerian monkey (*Macacus innuus*) is readily susceptible to the virus and, when infected, presents a granular conjunctivitis of the type occurring in man, which develops quickly, and becomes cured in about two months. In two experiments flies were kept for three hours in tubes containing the secretion from cases of trachoma, and were then transferred to a clean cage. After an interval of 24 hours in one experiment, and six hours in another, the heads and feet were cut off and pounded up with normal saline solution. Inoculation of the lids of the monkey, after scarification, with this material was followed by a granulomatous conjunctivitis of typical character.—(*Comp. Rend. Acad. Sciences*, 1919, vol. 169.)

Typhus Fever

Since early in the great war, typhus fever has been alternately epidemic and endemic in parts of central and eastern Europe. As the disease is only known to be transmitted through body-lice, the migrations of individuals harboring these vermin are the means of spread. Prisoners of war returning to their homes are said to have caused extension of the disease into former Austrian territories, and into portions of Germany, both former and present. It is recollected that, during the war, typhus was extremely prevalent in Serbia and in portions of Russia, Turkey and Austria and even penetrated into Germany, carried thereto, it is said, by Russian prisoners of war. In the Allied Armies on the Western Front only sporadic cases occurred.

A few cases of typhus fever occurred nearly every year in this city, between 1868 (the year our records began) and 1892, at which time we had a small outbreak, sometimes spoken of as an epidemic.

The rarity and mildness of the disease as prevailing here since this outbreak, is shown by the fact that but 107 cases and 5 deaths were reported in the city between 1893 and the present time. Some of the cases recorded for the last mentioned period were diagnosed as Brill's Disease, since for a time, the identity of this malady with typhus was not recognized.

The diagnosis of typhus fever, in the work of the Department of Health, is based on clinical evidence only, but the symptoms and course of the disease are so characteristic and so constant, in every case accepted as typhus fever, that there seems to be no ground for doubt as to the diagnosis.

Persistent frontal headache for ten to fourteen days; fever, coming on with the headache and persisting with it, showing small daily remissions, usually of a degree or less; dark macular rash, developing petechiae on trunk and extremities, coming out from the third to the fifth day of fever, and persisting about one week; rapid breathing—40 to 60 per minute—without lung lesion, other than possibly slight hypostatic congestion. When cases, showing the above manifestations, clear up in every way by semi-crisis toward the end of the second week, a diagnosis of typhus is inevitable.

The topographical and racial groupings of the sporadic cases of typhus fever, that have occurred in New York City during recent years, are similar year after year. We practically never find more than one case in a given house or even in a given block. While the typhus patients have been tenement house dwellers and poor, yet it is exceptional to find vermin on the premises.

TYPHUS FEVER IN NEW YORK CITY.

Year.	Cases.	Deaths.	Year.	Cases.	Deaths.
1868	(?)	157	1887	2	1
1869	(?)	137	1888	4	4
1870	(?)	103	1889	0	0
1871	(?)	73	1890	4	1
1872	(?)	98	1891	9	1
1873	140	42	1892	241	45
1874	57	21	1893	473	200
1875	68	37	1894	0	0
1876	28	28	1895	0	0
1877	20	20	1896	3	0
1878	10	4	1897	0	0
1879	8	4	1898	1	1
1880	3	3	1899-1913	0	0
1881	612	163	1914	17	1
1882	209	66	1915	13	0
1883	71	15	1916	24	1
1884	133	27	1917	24	2
1885	84	17	1918	13	0
1886	66	17	1919	12	0

—(*Bull. N. Y. City Dept. Health*, July 31, 1920.)

Vocational School for the Tuberculous, in Chicago

There is nothing new about the theory of special training for the handicapped, or even the therapeutic effects of work properly adapted to the needs of the chronic. It has long been recognized that the mental effect of idleness upon those by disease condemned to a life of uselessness is so depressing as to hasten their death. For years there has been a discussion as to the sorts of activity that could with safety be introduced into tuberculosis sanatoriums. The old treatment prescribing complete rest and fattening foods has not solved the problem of tuberculosis. That it cannot be assumed that every gain in weight means a corresponding gain in resistance to disease is proved positively by the reactivation of tuberculosis in sanatorium patients discharged as cured, and by the fact that they also show a lack of resistance to other contagions.

Herman Brehmer introduced graduated exercises in his treatment of tuberculosis some sixty years ago. Dr. Patterson, of Frimley, England, found that exercise stimulates the production of antibodies and that the induced deep breathing gives tone to muscle and blood vessels. Dr. Edward McSweeney of the New York State Department of Health went a step further and introduced in the treatment of his patients properly selected work from fifty occupations. Most of the sanatoriums of the country have departed from the program of absolute rest.

The advantages of the work régime have been notably demonstrated by the Chicago Municipal Sanitarium. The vocational school for the tuberculous, conducted at this institution, is the subject of a report by Dr. John D. Robertson in the *Bulletin* for January, 1920. Graduated labor was introduced in their treatment in 1917, when twenty-five patients under close supervision were given the care of their cottages. It was soon evident that the feeling of cheer their useful activity induced materially aided in their cure. To carefully supervised useful work was soon added the idea of utilizing the period of enforced rest for vocational training, by which means the patient may return to the industrial world better equipped than when he left it, or may be prepared to earn a livelihood in a new occupation not hazardous to his health. The training has become increasingly popular with the patients and has furnished an added incentive to them to get well.

Each prospective student is advised as to what course he can most advantageously take up. A course in English is recommended to every patient, especially to the foreign-born patients. It really seems a waste of opportunity to allow any foreign-born person to be present in any institution belonging to the city or Government without teaching them something of the English language, and it seems as if it would be desirable to require every such patient who has passed the febrile condition of disease to spend at least an hour daily in the study of the English language supplemented by the study of civics.

The school even provides for the man of exceptional ability. To him is offered the choice of studying pharmacy, x-ray work, or photography, electricity, or routine laboratory work. A course covering six months of study, lectures, demonstrations, and active experience provides an undergraduate nurse course, its object being not only to prepare for professional nursing but to inculcate the principles of cleanliness and first-aid in the home and community. A course in domestic training covers all of the essentials of hospital and home food preparation for both the sick and the well. The Department of Agriculture and Horticulture prepares for a decidedly healthful employment. Practical demonstrations are given and they are directed in the use of current garden and farm papers regarding various phases of the work. There are courses in telegraphy, woodworking, and shoe repairing.

Two courses have contributed greatly to the morale of the patients—the course in barbering and the one in beauty culture. Any patient desiring this service receives it at the school free, and attendants say that there is nothing that will so put heart into a bedfast patient as this service carried into the wards by advanced students.

Recreation is also provided for, and the Hall for Health Education provides many lectures on ethical subjects.

Those too young to take up the study of a trade receive the regular school subjects, toy making, and rug making. It is planned to carry these subjects into the wards for the benefit of the bedfast patients. The object of the school is therapeutic, but the economic gain adds rather than detracts from its curative purpose.—(*Mod. Med.*, Vol. 2, No. 7.)

Diagnosis and Treatment

Silver Salvarsan Sodium

Kolle,[1] in Germany, has recently introduced silver salvarsan sodium in the treatment of syphilis. Preliminary experimentation as to the therapeutic value of the drug in syphilis was made with rabbits. It is understood that Kolle placed generous quantities of the drug in the hands of German clinicians[2,3,4,5,6,7,8] so that now the leading German medical periodicals are reporting the observations of these clinicians.

It is stated that this new antisyphilitic agent is more harmless than old salvarsan because the effective dose, 0.2 to 0.3 gm., is below the danger point for arsenic. The arsenic content of silver salvarsan is reported as 22.5 per cent., with 14 per cent. silver. This arsenic content is about two-thirds that of old salvarsan. Silver is reported as catalytic to the arsenobenzol molecule, and is also said to reinforce the specific action of arsenic on the Spirochaeta.

It is claimed that silver salvarsan acts rapidly, is well borne, and that it has been used without severe reactions. From 1 to 1.4 gm. is considered sufficient for a single course of treatment.

Delbanco[9] reports 550 injections of the drug without untoward action. Boas and Kissmeyer[10] reported the use of 400 tubes of silver salvarsan on 62 syphilitics and think it equal to old salvarsan. Korsbjerg[11] used it on 32 patients with favorable results.—(*Mod. Med.*, July, 1920.)

1. Kolle, W.: Deutsch. Med. Wchnschr., 1919, xlv, 481. 2. Rille and Fruhwald: Munchen. med. Wchnschr., 1919, lxvi, 1226. 3. Hoppe: München. med. Wchnschr., 1919, lxvi, 1376. 4. Stern: München med. Wchnschr., 1919, lxvi, 1377. 5. Nolten: Deutsch. med. Wchnschr., 1919, xlv, 987. 6. Dreyfus: Deutsch. med. Wchnschr., 1919, xlv, 1292. 7. Knopf and Sinn: Deutsch. med. Wchnschr., 1919, xlv., 517. 8. Friedlander: Deutsch. med. Wchnschr., 1919, xlv, 484. 9. Delbanco: Deutsch. med. Wchnschr., 1919, xlv, 150. 10. Boas and Kissmeyer: Ugesk. f. Laegar, Copenhagen, 1920, lxxxii, 191. 11. Korsbjerg: Ugesk. f. Laegar, Copenhagen, 1920, lxxxii, 196.

Treatment of Lupus.

Brocq points out, in the course of "Some practical remarks on the subject of new methods of treatment of lupus vulgaris," that there is no specific treatment for this disease, or rather, that there is no one particular treatment applicable to every case. Neither the light-treatment, Kromayer's lamp, the X-rays, the high-frequency spark, carbonic acid snow, nor injections of tuberculin, nor of arsenobenzol can be looked upon as the only treatment. Brocq declares, after many years' experience, that it is necessary to be eclectic in treating lupus. He judges the treatment required from the point of view of the localization of the affection and from that of its objective varieties.

Lupus in the vicinity of the orifices of the face should be treated by cross-cut linear scarifications. The nasal fossæ must be examined and treated with the greatest care by scarifications or by scraping, followed by cauterization. It is advisable, after scarification, to apply permanganate of potash,

chloride of zinc, or "les deux crayons." A dressing of mercurial plaster is applied after all bleeding has ceased.

Lupus of very small extent on the face, on the limbs, and on the trunk should be excised. Moderate lupus of these regions is susceptible to light-treatment or scraping, followed by cauterization and iodoform dressings. The scraping must be repeated until no more lupomata appear in the scar.

Lupus on mucous membranes requires actual cautery or scraping and subsequent cauterization; for the eyelids, scarification is the method of choice.

Brocq distinguishes three varieties. Of these the ulcerated form is often the least serious, and treatment should begin by applying light caustics, the best being mercurial plasters or permanganate of potash. Recourse to other methods of treatment should only be adopted if these fail in effect.

Rapidly spreading forms must be treated by scarification without delay. Turgid forms, with considerable thickening and infiltration of the tissues, should be treated with injections of calomel or by some method of radiotherapy. The infiltration is lessened by such means, and then the ordinary methods can be used.—(*Journ. de Méd. et de Chir. prat.*, February 25, 1919.)

Iodin Disinfection.

The efficiency of disinfection of the skin with iodin has recently been the subject of painstaking investigations by Dr. Johan Seedorf (*Acta Chirurgica Scandinavica*, 1920, vol. lii., Fasc. v.), a countryman of Professor Rovsing, whose criticism of this popular method of disinfection has done much to prevent its acquiring the unimpeachable security of stereotyped orthodoxy. Rovsing's indictment, it may be remembered, was supported by cases in which tetanus or gas phlegmon developed in spite of pre-operative treatment of the skin with iodin. Dr. Seedorf's investigations were made both in vivo and in vitro. With regard to the latter, he found that iodin (0.1 per cent.) in an aqueous solution of potassium iodid kills staphylococci in one minute, but tetanus spores only after two hours. This disinfectant action of iodin increases with the strength of the solution only up to a certain point; its maximum efficiency is exhibited by a 1 per cent. solution.

In confirmation of earlier investigations, it was found that, though alcohols readily kill the ordinary bacteria, their action on the spore-forming group is very slight, whereas that of iodin is much more effective. The effect of iodin on the skin was studied on rats' tails as well as on human skin. It was noted that the disinfectant action of iodin on a rat's tail was not checked by previous washing with soap and water, and this was so whether the skin was still moist or not after the washing. The same observation was made on the human skin, and this point is the more interesting as some advocates of iodine disinfection have insisted on dryness of the skin being an essential preliminary to the application of iodin.

Dr. Seedorf made a series of interesting comparative investigations into the effect of iodin sterilization as practised in three different surgical departments. All used a 5 per cent. solution of tincture of iodin, but the ritual differed in the various departments according to the inclination of each surgeon and the urgency of the operations. At the beginning of each operation a piece of skin, which had been treated with iodin, was excised and submitted to bacteriological examination. Although the skin was found to be sterile only in 42 per cent., healing by first intention was effected in 90 per cent. of the cases in which drainage was not maintained. In 3 per cent. abscesses formed in the operation wound, and stitch abscesses formed in 7 per cent.

In all these post-operative septic cases the excised portions of skin yielded micro-organisms. But in spite of these shortcomings Dr. Seedorf recommends iodin disinfection, especially when it is preceded by mechanical cleansing, and when three paintings of iodin are given at intervals of five to ten minutes during the last half hour before operation. He employs a 1 per cent. solution of iodin dissolved in 96 per cent. of ethyl-alcohol. If time permits there should be an interval of about 12 hours between the soap-and-water cleansing and the application of the iodine. In emergencies soap-and-water washing should be omitted in order that repeated applications of iodin may be made.—(*Lancet*, June 5, 1920.)

The Bacteriology of Colitis.

H. L. Lyon-Smith, of London, says the presence of mucus in the stools is the chief point in the diagnosis of colitis, as mucus is not a normal constituent of intestinal evacuations. In taking the history of a case patients are usually found to be ignorant of the presence of mucus, with the exception of more severe cases where they have noticed slimy and abnormal motions. The majority of physicians have been content to order a specimen of the feces to be sent to the bacteriologist, who usually receives for examination purposes a small portion of a solid stool, from which he is expected to prepare a vaccine of the most conspicuous organisms. It is the method which is required for distinguishing which foods have been digested or otherwise, but is too gross a one for the diagnosis of the bacterial factors in colitis. The malady is not of the feces, but of the intestinal mucous membrane, and the closer we get to the latter in our researches the more likely we are to discover the real nature of the pathogenic organisms concerned in the ætiology.

It has been Smith's practice of the writer to ask the patient to have a Plombière douche, and from the second washing flakes of mucus can be collected. The rectum is first washed out with a pint of warm water and the fecal discharge thus obtained discarded. A second irrigation is then made with two or three pints of plain warm water, slowly injected, and allowed to remain in the intestines about six minutes, while the patient turns from side to side in order to separate the adhering mucus. This second wash-out is received in a clean receptacle, and search is then made for flakes of mucus, which are transferred to a sterile specimen bottle. When received these flakes are poured out into a large Petri dish half full of sterile normal saline and examined against a black background in order to obtain some idea of the character of the mucus. Under microscopic examination these may be found in thin, pale brown, soft flakes, or, in other cases, thick, dark brown, tenacious masses, and in severe cases a complete cast of the intestine may be found. To search for amebæ, a portion of the membrane may be broken off and examined under a cover-glass on a warm slide. Other fresh films are made and stained.

Slide 1.—Stained by carbol-thionin, which shows up, clearly, capsulated bacteria, such as enterococci, *B. mucosus capsulatus, pneumococci*, or the longer chains of *Streptococcus mucosus capsulatus*. It will also show if there are any ova of intestinal parasites.

Slide 2.—Stained for T.B.

Slide 3.—Gram-stained, gives a differential estimation of the relative proportions of the Gram-negative and Gram-positive bacteriar. In most specimens of mucus from cases of colitis the latter exceed the former in numbers.

For cultural purposes a small piece of the mucus is teased off with platinum needles, put into a tube of sterile broth, incubated at 37° for an hour, then well shaken up, and loops of this broth are subcutured on various media at the discretion of the worker. The writer prefers to use: (1) ordinary agar tubes; (2) glycerine agar; (3) freshly made blood-agar tubes; (4) bile-salt-agar plates, a very convenient preparation for making these being the "Solmedia" preparation of MacConkey's bile-salt agar, issued by Baird and Tatlock.

The freshly-made blood-agar media enable one to pick out those small, powerfully hæmolysing colonies of streptococci which are extremely pathogenic and frequently the chief causes of dangerous anemias. In one case of pernicious anemia accompaned by colitis, a vaccine of hemolytic streptococci was the principal constituent of an antigen which proved most effective, as shown by the differential blood counts. This occurred three years ago, and the patient is still in good health.

The advantages of this method of examination over that in general use—namely, investigation of the solid feces—must be evident, as it is possible for the bulk of the feces to be evacuated without having ever been in contact with the inflamed intestinal walls, so that the pathogenic organisms responsible for the colitis may easily escape detection.—(*Lancet*, June 12, 1920.)

The Search Into Malignancy

During the past five years there has come more than a ray of hope in the search for cause of malignancy. The relation of food metabolism to cancer has been suggested repeatedly by papers on the Institute floor and by discussions in sectional meetings. There is a group of reprints chiefly from the *Journal of Laboratory and Clinical Medicine* worthy of careful study by the student of internal medicine. Dr. Georgine Luden of the Mayo Clinic has made sundry studies in this field under such titles as "Cholesterin Retention as a Factor in Cell-Proliferation," "The Blood Cholesterol in Malignant Disease and the Effect of Radium on the Blood Cholesterol," "The Value of Blood Cholesterol Determinations and Their Place in Cancer Research." Authors are accurately noted and experiments clearly recorded. The author's conclusions are logical. Only careful reading can convey the value of the work done.

A few quotations will illustrate the lucid style: "That the fundamental factor in malignant diseases, whatever it may be, is widely distributed through the organism seems evident from the literature reporting conditions in which more than one tissue has become involved in the process of degeneration." "Is there any chemical substance which appears to be essential for normal proliferation or growth, the activity of which may

be traced in abnormal proliferation or malignancy?" "Observations strongly suggest the existence of some kind of correlation between cholesterin-increase and cell-proliferation both under normal and abnormal conditions, and appear to indicate not only that cholesterin is associated with active cell-proliferation but also that it acts as a stimulant to cell division." "Cholesterol forms a constituent of every mixed diet. Our daily food is therefore a perpetual source of cholesterol intake. To compute a diet that is entirely free from cholesterol but containing the requiste number of calories, as well as the necessary amounts of protein, carbohydrates, fat, and mineral salts, might be a difficult task. Such a diet would probably be very unpalatable and it is doubtful, to say the least, whether it would prove beneficial in the end." "The cholesterol content of the blood can be increased, even in a healthy person, by the consumption of a great deal of meat, and that eggs, with their high cholesterol content, are likely to have the same effect is to be expected." "In carcinoma, systematic observations on the cholesterol content of the blood by a uniform method and in connection with dietetic and therapeutic measures would not only help to keep us informed, but also very materially further our understanding of the causes of malignant growths."

Dr. Luden writes very convincingly of the adrenal gland as the chief organ regulating cholesterin metabolism and of the large field for therapeutic investigation in physiological chemistry.—(*Jour. Amer. Inst. Homeop.*, Aug., 1920.)

Analysis of Induction of Artificial Pneumothorax in Fifty Cases of Tuberculosis

Z. P. Fernandez, Leeds City Assistant Tuberculosis Officer, is a believer in the value of artificial pneumothorax. He says that as early as 1821, James Carson, of Liverpool, experimented on rabbits and prophesied a future therapeutic value before the local medical society. The Clinical Society, London, applauded William Cayley for the first case of hemoptysis arrested by induction, though with a technique crude beyond doubt. Soon Potain in France, Forlanini in Italy, Murphy in the States, Brauer in Germany, L. Spengler in Switzerland, Saugman and Hansen in Denmark, and a number of other foreign clinicians took up the treatment with success. In England, the method was reintroduced by Dr. Claude Lillingston. A personal account of his case, appearing in the Special Tuberculosis Number of *The Practitioner* (January, 1913). A patient at Mesnalien Sanatorium, Norway, with febrile pulmonary tuberculosis in 1909, he took the risk of the treatment at the suggestion of Dr. Holmboe, with the result that his temperature became normal, and his cough and expectoration ceased. The next year he was able to return to England, and, with Vere Pearson, performed the first induction at Mundesley Sanatorium on a patient who was alive two years later. The first publications on the subject appeared in the *Lancet* in July, 1911, by Lillingston, Vere Pearson, Colebrook, and Rhodes.

A study of the literature on the subject shows there is considerable beneficial effect in 40 to 50 per cent. of cases successfully treated, in spite of the advanced material selected, with general arrest of severe hemoptysis. The results may still be improved with a slowly acquired clinical instinct to select the suitable case, or with *x*-ray or fluoroscopic examination. Dosage and timing of interval, too, have in the past been haphazard.

Roughly estimated for a period of 18 months from September, 1917, to March, 1919, about 800 pulmonary tuberculosis patients of all stages were treated at the Leeds City Seacroft Sanatorium. Keller estimated 7 per cent. as suitable. Considering intermediate and advanced cases, about 10 per cent. have been subjected to induction treatment. Of the 40 per cent. early cases with few physical signs and systemic disturbance, the majority improved under sanatorium conditions: only seven of these, who showed progressive activity, were selected for the treatment. The average percentage mortality for six years in the sanatorium was about 16.7 of all discharges. In the official year ending March, 1918, the life-time of the patients who died in the sanatorium averaged one year and five months after the first definite symptomatic manifestations, as against two years and one month of those who died with previous induction treatment. The majority of the treated cases still alive after two years had then a period of illness dating on the average two years and four months. The patients treated were of the working class, the majority of whom did not seek advice until the symptoms were alarming and signs pronounced.

Severe and recurrent hemoptysis is a frequent and occasional fatal symptom in pulmonary tuberculosis of the above type of patients. Exacerbation with fatal termination often follows such hemorrhage. In 1917 to 1918, the author witnessed nine sudden deaths from hemoptysis, about 6.6 per cent. of the total mortality. For six years, about 1 per cent. of all admissions and 8.6 per cent. of all mortality died of this complication. In such cases when medical treatment fails, so long as there is no cardiac or renal disease, induction can be more safely relied on than surgical interference for an abdominal catastrophe. Another baffling symptom is continued high febrility, from which 55 per cent. of the fatal cases suffered. In 15 out of 18, febrility was arrested by induction in less time than by the usual sanatorium measures.

Result in March, 1920 of the 50 cases treated.

GROUP I.—*Fifteen cases of severe and recurrent hemoptysis (six unilateral and nine bilateral).* Death in five.

(a) One unilateral case after temporary improvements of one year and four months died of bilateral disease.

(b) Of the four bilateral, one died of influenza in the epidemic of November, 1918, and three treatments not continued.

Ten are now alive, of whom eight show quiescent signs. Four of these are fit for a full day's work, one for over 2½ years, two for over two years and four months, and another for 1½ years. Four are fit for light work; two for 2½ years and two for two years and three months. The remaining two have done light work for over nine months, and the condition of the lung is one of chronic fibrous disease. Hemoptysis has been successfully arrested in all but one, who refused the treatment for ten months in spite of recurrence and severity. The day after he consented for an initial induction of only 200 cc. of oxygen, he had a severe fatal hemoptysis. Necropsy revealed a cavity at the right base of the lung, and the pleura was about half-inch further on the right side than on the left. My impression was that the patient would have derived benefit with earlier and continued induction treatment, and that the hemoptysis was independent of the induction, the quantity of gas used being too small.

GROUP II.—*Nine cases of unilateral softening of more than one lobe with moderate resistances and systemic disturbances.* Death in two after temporary improvements of twelve and eighteen months respectively. Alive, seven with quiescent signs and satisfactory working capacity, including two cases of six and four years after first induction.

GROUP III.—*Five bilateral cases. Extensive disintegration of one side and moderate infiltration of the other. Resistance good and systemic disturbances tolerable.* Death in two, one two years after from influenza and another six years after the first induction. In the three alive, the lung condition is quiescent and capacity for work good after 3½, 4½ and 5½ years respectively.

GROUP IV.—*Thirteen bilateral cases as above type but resistance and systemic disturbances not satisfactory.* Eleven of these are now dead. Five from influenza epidemics with considerable improvement previously. In six treatment could not be continued owing to adhesions or other complications. In two now alive condition satisfactory after 1¾ and 2½ years respectively.

GROUP V.—*Four bilateral advanced disease with slight negative pressure and severe systemic disturbance and poor resistance.* Death in three and treatment could not be continued owing to adhesions or other complication. No improvement in the fourth after 1¾ years.

GROUP VI.—*Four cases of advanced bilateral disease with terminal laryngeal complication.* Death in two after two years, one after four years, and another nine months after first induction from laryngeal complication after considerable general improvement.

Briefly, in September, 1919, out of 50, 25 died, and in four the prognosis was bad, of whom three died since. In 21, or 42 per cent., of the cases treated the condition was satisfactory in March 1920. In seven death was directly from influenza, and in others that died the treatment was not continued, or they had died after considerable improvement. Of six patients who had bilateral induction, three are dead and three have done light work for 2½, 3½, and 5½ years respectively.

In the more of induction of the above cases the writer experienced no dangers, and pleural effusion resulted only in one case. The gas used was ogygen. The author employed small doses of usually 300 to 500 cc., repeated at frequent intervals, which not only avoid distress to the patient but achieve satisfactory results. Mediastinal and cardiac displacement never follow such procedure.

Tachycardia

Tachycardia in a man who is up and about is compensatory in character. The addition of acceleration to augmentation. It points to the presence of a mild infection, and can be removed only by removing the infection. There is evidence that the action of the toxin is directly on the cardiac vague.